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JOURNAL OF FARM ECONOMICS

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NEWLY DEVELOPING INTERNATIONAL SITUATION AND AMERICAN AGRICULTURE

O. B. JESNESS

University of Minnesota

The American farmer has a stake in the foreign market and hence is vitally concerned with the world war now in progress and conditions to which it may lead in the future. Throughout much of the history of this country, export markets for American farm products have been largely taken for granted. Shipment of products of American soil to satisfy European wants dates back to early colonial days. Advances to colonists to provide passage and subsistence were repaid in this manner. Tobacco attained an important place in the agriculture of some of the colonies because of the availability of foreign markets for it. The rapid expansion and settlement of this country were the result in no small degree of the fact that outlets could be found for products of its farms. A limiting factor in a new country is usually that of capital. Investments and loans from other countries not only aided in developing the resources of the new world but also facilitated the sale of agricultural products abroad. In its capacity as a debtor nation, the United States exported more goods than it imported and many of its citizens mistakenly came to regard a "favorable" balance of trade both as a mark of prosperity and as an inalienable right. The first world war at the outset brought a period of agricultural uncertainty but later on the slogan that "Food will win the war" rang in our ears and stared at us from the billboards. Exports of farm products received a decided stimulus during this period.

The popular forecast in the early post-war that American agriculture would be called upon to continue to supply large amounts for European consumers proved to be over-optimistic. European agriculture recovered more rapidly than many expected. Moreover,

limitations of foreign exchange restricted the ability of European nations to purchase here. That this was not generally understood in the United States is attested by the fact that tariff policies which hampered rather than encouraged exports were continued and extended in the tariff legislation of the early 1920's and again in 1930.

The trade agreements program, first started under authority granted by act of Congress in 1934, grew out of a realization of the important part which exports play in our economy. It has represented an effort to reduce restrictions with the objective of expanded trade. Farm products have occupied an important place in this picture in recognition of the reliance which some important lines of agriculture have continued to place on the export market. No reminder is necessary here of the fact that this reversal of policy has fallen far short of gaining unanimous support of farm groups.

As this nation has become more industrialized, the domestic market for farm products has expanded. At the same time, non-agricultural exports have increased. However, the share of the agricultural market represented by exports has continued to be larger relatively than that for industrial products as a whole. As far as our entire trade is concerned, that with the western hemisphere and southeastern Asia has grown more in recent decades than has our trade with Europe. But foreign markets for agricultural commodities have remained largely in Europe. This is one reason why the interferences of the present war fall so directly on agriculture.

The preceding very brief sketch of agriculture's interest in the foreign market has been included not as any complete statement but merely as a general background to a consideration of how the farmer is affected by the present international situation. Enough has been said to suggest the importance of the foreign market. Of the staple agricultural commodities, cotton is most dependent on export outlets. The foreign market is very important for certain types of tobacco. Similarly, the customary production of some classes of wheat is greater than the takings of the domestic market. Some pork has been exported and, as illustrated by the present situation, lard supplies soon become burdensome when the foreign market is shut off. Exports are important for certain fruits. The United States also is an exporter of rice.

A popular expectation when the war broke out in 1939 was that an immediate price rise would follow. Many consumers had recollections of the first world war. They did not have the facts in hand

to analyze the situation so many proceeded to stock up on sugar and other products. What they failed to remember was that prices did not advance immediately after the outbreak of war in 1914. They did not realize that the conditions they recalled were mainly those of 1917 and 1918, after the war had been under way for three or four years. They also lost sight of some important differences between the two periods.

Effects of Second World War

The second world war brought into sharp focus certain changes which had been underway for the previous two decades. While the first world war arrived on a scene where the high cost of living was the center of attention, the second broke out at a time when much of the world was struggling with agricultural surpluses. European consuming nations had expanded their agriculture, partly because of depression conditions, partly because of foreign trade and exchange situations, and partly as a way of decreasing their vulnerability in the event of war. The trend towards self-sufficiency became particularly strong after the onset of the world-wide depression beginning in 1929. Efforts to increase domestic production of agricultural products were especially marked in some of the importing countries of continental Europe. Considerable support for greater self-sufficiency was evidenced even in the British Isles. Area limitations, of course, preclude satisfying any major share of their food requirements from home production but there is the far flung British Empire on which to draw. The Ottawa agreements were a part of the increasing self-sufficiency of the depression period in that their aim was to foster trade within the Empire.

The movement towards self-sufficiency on the part of importing nations brought a decided increase in restrictions on international trade and in governmental control of such trade. Thus, Hevesy writing in 1939 about the wheat problem was led to comment that "I should have liked to have been able to mention here a single country in which the government does not interfere with wheat, but I have failed to find one!"¹ It might be added that among the conditions which gave rise to the calling of international conferences to deal with the wheat problem, was the increased production of consuming countries.

¹ Paul de Hevesy, World wheat planning and economic planning in general, p. 125.

The war, therefore, broke out in a world better fortified with agricultural supplies than a quarter of a century earlier. The blockade established early in the war against movement of products destined for Germany curtailed trade somewhat. The neutrality and cash and carry policies adopted by this country meant that we preferred not to risk war in order to push such trade. When Germany's invasion of one neighboring country after another got underway it rapidly curtailed the export outlets for American farm products. The entry of Italy served to close up additional outlets. The capitulation of France limited markets still more. The result has been to close practically all of continental Europe as a market for American farm products.

Allied purchases provided the major export stimulus during the first world war. During the present war, Great Britain has preferred to use her resources available for purchases in the United States for war supplies not obtainable elsewhere and to get her agricultural needs from Empire countries or other sources where credit or exchange conditions have been more favorable. In some cases, as for instance with tobacco, there was a shift away from the United States apparently as an effort to balance German influences in other quarters such as Turkey. The German invasion of European countries, of course, served in turn to shut off British sources of food supplies from the continent but, up to the present at least, Great Britain has not found it necessary to substitute farm products from the United States to any marked degree.

The agricultural exports of the United States consequently have been reduced by war developments to date. About the only product which has had any considerable increase is that of canned milk, a relatively minor item. With limited exceptions, the agricultural import situation has not been affected in the same way. Agricultural imports into this country do not normally originate in Europe to any major extent. The supply of certain types of foreign cheese has been shut off. Imports of fats and oils have been reduced somewhat but, as an offset, our domestic production has been above that of last year. While some of our agricultural imports supplement our own production, a considerable share consists of products not produced here. These come largely from tropical climates, that is from regions not at present actively involved in war.

The consideration of war and the American farmers' market in this paper is in terms of the conflict across the Atlantic. This does

not mean that the international problems of interest to this country relate only to Europe and Africa. It is true, of course, that we are very vitally concerned with events in the Far East, as well, and that it is far from the realm of the impossible that this is the sector in which this country may have to play a more active part. However, the war in the Far East does not apply so directly to the market for farm products generally although important amounts of cotton, tobacco and other commodities have found markets there. Reduction in imports of silk offers some opportunities for substitute fibers. The effect is greater on rayon and nylon than on farm-produced fibers such as cotton and wool. A spread of the war to the East Indies and other areas might endanger our supplies of rubber and other goods. However, those possibilities do not bear so directly on the market for the products of American farms.

We may therefore sum up the effects of the war upon export outlets for agricultural products from the United States by saying that thus far they have been curtailed with little opportunity for the products deprived of a market to find an outlet elsewhere. What the future has in store necessarily takes us into the realm of conjecture. However, it is worthwhile to examine prospects in the light of various possibilities.

One important question relates to how long the war will last. An end to hostilities in the near future might open the way for taking some of the present supplies to Europe to meet the pressing food problems of its population. Some reduction in accumulated surpluses might result therefrom. It also would make it possible to work for the restoration of at least part of the lost market. A factor unfavorable to the latter is that war activities certainly are not enhancing the ability of Europeans to buy our products nor it is likely to make them more willing to increase their dependence on distant sources for the future.

If the war continues over a considerable period of time new factors will be injected into the situation. Warring nations will tend to become increasingly dependent upon outside agricultural supplies. Great Britain's access to European supplies is likely to remain cut off for the duration of the war. She will look to the Americas and to parts of the Empire outside this continent. Failure of bombardment from the air to defeat England quickly has led to some shifts in attack. One of these is the spread of the war in the Mediterranean; another is increased submarine activity. Interferences to shipping,

whether from the air or below the surface of the sea, may come to play an important part in redirecting purchases of agricultural needs. If a shortage of shipping develops, a premium will be placed on nearby sources.² Under such circumstances, the United States and Canada would occupy a favored position. In considering the shipping situation it may be suggested that it is not sufficient to think only in terms of merchant shipping available. One must also have in mind the availability of armed vessels for convoy service. The situation with regard to the latter would be altered if this country should change its policies regarding the use of American ships or if it should become directly involved in the war. In fact, certain groups in this country favoring more active aid to Great Britain are exerting pressure for modification of restrictions on the extension of credit and on the use of American ships for the transport of supplies. If Great Britain's position is weakened, these efforts may be expected to increase. A lagging in our interest to aid Great Britain is not in prospect. It is reasonable to assume that when Britain's means of purchase in this country actually are approaching an end, this country will take steps to prevent this becoming a limiting factor. It is not beyond the realm of possibility that if an acute shipping shortage develops, we may see fit to ease present restrictions on the use of our own transport facilities. Should we become an active participant in the war, the speed and extent of our action along these lines undoubtedly would be increased. To the extent these possibilities develop into realities, an increase in agricultural exports is likely to result although war supplies may be expected to remain in first place. A war of some duration may, therefore, develop conditions under which there will be increased demand for farm products. What is presented here, of course, is a picture of possibilities, not a forecast of events to come.

When Peace Comes

Another question deserving attention relates to the kind of a world we are likely to find ourselves in after the war is over. The answer depends, at least in part, on who wins the war and what the relative strength of the opposing forces may be at that time. Will Germany win, or will it be Great Britain, or will it end in a stale-

² A discussion of the shipping situation is found in the recent report by Hobart S. Perry, Impact of the present war on ocean shipping with special reference to the effects of war shipping conditions on United States Agriculture. Bureau of Agricultural Economics.

mate? Much also will depend on how much vigor is left in both victor and vanquished. If Great Britain is the winner, what are the prospects for a reestablishment of governments on the continent which will endeavor to restore reasonable trade and other relationships with the rest of the world? According to news reports from abroad, totalitarian powers have already laid plans for the division of control over vast expanses of territory when the war is over. If these powers win, will they be able to dominate continental Europe and perhaps northern Africa in the post-war? Will they seek to employ such domination for developing in that territory a well-knit empire or block of countries? If so, will the emphasis of such an area be on self-containment with external trade carried on under strict control for the purpose of strengthening the power of the dominant state? On the basis of past performances, the logical answer to these questions of intent of dictators is in the affirmative.

Indications are that Great Britain will do well if she can hold invaders from her shore. There appears to be no reason at present for hoping that the British can establish a foothold on the continent and defeat the opposition on its own ground. Hope for British victory, therefore, rests in making the blockade effective, in attacks by air, in outlasting the opposition in withstanding the exhausting effects of war, and in the possibility of internal upheavals on the continent. British success might lead to an overthrow of present dictatorships. Whether governments with reasonable freedom in economic activities left to their peoples would rise up in their places can hardly be more than hope at this stage. However, only if this happens is there likelihood of restoring trade with Europe along the lines on which it was conducted prior to the war. If peace is accepted in effect only as an armistice between wars, political and military aims may be expected to take precedence over economic considerations in international trade. If such a situation develops the farmers of the United States need not expect to expand their export market greatly. In fact, they may have to reconcile themselves to further shrinking of foreign sales.

Realism forces one to admit that a British victory by itself would be no guarantee that democratic forms of government will automatically be resurrected on the European continent. The experiences which invaded nations are going through will create conditions calling for difficult readjustments in the future. Even if freed from German domination the temptation may be to establish ex-

treme governmental controls over economic activities in order to carry out the needed programs. The tendency of such controls is likely to be that of extension and perpetuation. If such a situation develops, the post-war Europe is apt to be one of closely restricted and controlled international dealings. The extent to which the American farmers will be able to retain and regain outlets for their exports if such conditions develop will depend on how well we can adjust and adapt ourselves to them. It is, of course, not in place to suggest specific ways of dealing with a situation until we know what it is. It may be in order to comment, however, that this very condition of uncertainty is one good reason why our people should be seeking to enlarge their understanding of the fundamentals of international relations.

If the totalitarian powers win the war and if they retain control and direction over the economies of the remainder of Europe, including the Mediterranean and northern Africa, they would have an opportunity to knit together an area which is perhaps better supplied with human and natural resources than many Americans realize. Such an area probably could be made largely self-contained. Continued governmental control of production and other economic activities probably would be employed to this end. Consideration also needs to be given to the ways in which such control might be used in competing with other areas for markets and materials.

It is sometimes maintained that United States producers have no need to doubt their ability to hold their own in world markets for commodities in the production of which this country has advantages. That comforting conclusion, however, rests on the assumption that costs are deciding factors. When trade is subsidized or under governmental control, conditions affecting comparative advantage in trading are materially altered.³ A German-controlled Europe appears more likely to fall into the latter category.

The implication is not that a dictatorship need have no concern about the interests and desires of the people under its control. It is difficult to conceive of masses of enlightened people remaining efficient producers unless reasonable consideration is given to the

³ An illustration of this is supplied by Joan Raushenbush in: *Look at Latin America*, published by the Foreign Policy Association, 1940, when she comments that (page 42), "Export subsidies enabled German exporters to quote prices often twenty per cent below United States prices. The results showed how a strong industrial state practicing centralized trade control and ruthless competition can influence the trade of weaker nations."

satisfaction of their wants and needs. The point is rather that if an economic union of most of Europe and parts of Africa under the domination of a dictatorship emerges from the present war it can be made self-sufficient to a large degree. If necessary for its political or military ends, such a dictatorship can find ways and means of absorbing losses on barter trades for some of the markets and supplies outside the area.

Regional Phases

While time does not permit any detailed analysis, it may be in order to take a look at Europe from the standpoint of its agricultural supplies and needs.⁴ Roughly, there are three broad regions. Eastern Europe is largely agricultural and is a producer of surplus agricultural products. Central Europe is an industrial region dependent to a considerable extent upon imports to supply agricultural needs. Northern and Western Europe is an important agricultural area, which produces some export surpluses, particularly livestock and livestock products, but is in turn dependent upon imports to supply some of its needs such as bread grains and feed supplies. As this suggests, the production of different parts of Europe is complementary to a considerable extent. Under unified control, the complementarity could be increased in such a way as to make Europe largely self-sufficient. The point is not that this would be the best economy. It is rather that such a development is entirely within the range of possibilities.

When we look at the picture from the standpoint of commodities, we note that one of the important deficits is in fats and oils. About one-third of its needs in prewar was supplied by imports. This included some lard but consisted more especially of oil seeds, from which the oils were pressed for human use and the cake used for animal feed. In the case of feed grains, there have been surpluses in some parts and deficits in others. Countries of Northern and Western Europe have depended considerably on imported feeds to carry on their dairy, hog and poultry enterprises. Continental Europe has been producing most of its bread grains, some areas having a surplus and others being dependent on imports.

⁴ L. B. Bacon and F. C. Schloemer, *World trade in agricultural products*, recently published by the International Institute of Agriculture, gives an excellent, detailed account of pre-war trade in farm products and government policies relating thereto.

Foreign Crops and Markets, October 7, 1940, includes a good summary picture of the European situation.

The sugar needs are met for the most part by production on the continent, although its distribution is not uniform.

While Europe reorganized under dictator control might become largely self-sufficient, it would need some supplies from the outside and would find it desirable to have outside markets for some of its industrial products. This brings Latin America into the picture. This is a source of agricultural supplies and a market in which Germany has been seeking to expand its influence.

The present war has made the United States conscious of the importance of hemisphere defense. We have long been accustomed to look upon the Atlantic and Pacific Oceans as safeguards. However, we have become aware that this security would be reduced if not shattered were any parts of the Western Hemisphere to come under the sway of European dictatorships. Our defense preparations consequently give prominent place to protection of the Western Hemisphere from such domination. Some aspects of this have a rather direct bearing on agriculture and consequently belong within the purview of the present discussion.

Northern South America has a tropical climate and much of its agricultural production is of such a nature that it complements our own. If necessary, it would be possible over a period of time to develop production of such products as rubber and vegetable oils to replace supplies now obtained by the United States from other regions. However, farther south in the temperate zone, the agricultural production is more directly competitive with our own. Witness, for instance, the reaction of our livestock producers to imports of Argentine beef, or that of flaxseed growers to Argentine flaxseed. We do not need the wheat produced in South America. We may take limited amounts of corn for use near the seaboard or in times of short crops, but can not supply any major outlet. We have no present need for great expansion in our imports of hides or wool.

In short, here is an area with an agriculture even more dependent upon exports than our own and its markets are largely in Great Britain and on the European continent. We export considerable quantities of nonagricultural goods to South America. This trade was made possible in the past because markets were open to South America in Europe. While the export-import bank for the time being may supply loans for financing this trade this can only serve as a stop gap. Trade will be curtailed over the longer run unless means can be provided whereby Latin American countries may

balance their imports with exports. With a world in which multi-lateral trade is carried on and international settlements thus achieved, the problem is not difficult. With controlled trade, largely of a bilateral nature on a barter basis, the situation is vastly different.

Europe took about 54 per cent of the exports of Latin American countries in 1938 and supplied nearly 44 per cent of the imports. The United States took 30 per cent of the exports and furnished 34 per cent of the imports.⁵ This country occupies a much more important place in the Caribbean area than Europe while European trade is more important for the rest of South America. In short, if the problem concerned only Mexico, the Caribbean, Central America and Northern South America, it would relate to a region closely tied to this country in trade. The agricultural production of this area to a considerable degree is complementary to that of the United States. If supplies of various products from other tropical areas such as the East Indies were cut off, it would in time be possible to develop substitute sources for some of these products in this area. Rubber is an illustration of such a product. However, even though the United States is the largest factor in the trade of this area it does not mean that it controls all of it. Some of the trade is with Europe as well.

While the Caribbean region includes the most vital defense points for immediate protection of the Panama Canal and against attack from the south, the balance of South America can not be left out. All of the Latin American countries must be included and this is what makes the problem of export markets for agricultural products so difficult. Our trade with Brazil is important, particularly because we are the largest buyer of its leading export, coffee. In 1938 about 34 per cent of Brazil's exports were to the United States and 24 per cent of its imports from here. We took only about 8 per cent of Argentina's exports and supplied about 18 per cent of its imports. About 16 per cent of Chile's exports came here and 28 per cent of its imports were from us. Trade with Europe is more important than that with us in these and other countries outside the Caribbean area.

We are not in a position to increase greatly our takings of agri-

⁵ Joan Raushenbush, *Look at Latin America*, p. 32. For more detailed information see United States Tariff Commission's report on: *The foreign trade of Latin America*.

cultural products from this area because, as already indicated, they are so largely competitive with our own. Developing an area which could be largely self-contained would require the inclusion of consuming populations standing in need of the agricultural surpluses found in the Americas. If Europe should be turned into a largely self-sufficient region, it might become necessary to seek understandings and relationships among other parts of the world such as the United States, Latin America, the British Empire and parts of Asia. The British Isles might serve as an important outlet for South American farm surpluses in such an arrangement. However, it is not apparent that a self-contained area of this sort will arise without considerable reorientation of productive effort. Moreover, it is rather difficult to visualize the British Isles, as now established, maintaining normal production activities in close proximity to an antagonistic Europe. Without the consuming market of Great Britain available in full measure, the problem of agricultural surpluses would be large.

A Germany with strong domination over Europe would be in a position to provide Latin America important outlets for its farm products and might make attractive offers of goods and services in barter trades. Germany's object in such trading need not necessarily be limited to economic ends. It probably would become a very important means of gaining political ends. This is a possibility against which the provisions of the Monroe Doctrine and armed defense will not be very effective. It is a possibility which we need to include in our consideration of the situation.

This suggestion is not intended as any reflection on the attitude of Latin American countries. The importance of exports to them is such that the pressure upon them to yield if no reasonable alternative is in prospect might become very great. Agricultural statesmanship in the United States with respect to our relationship to this problem must think in broader terms than mere protection of the domestic market against competition from South America. Unless a more basic understanding is attained there is little hope of developing a program for effective dealing with such a problem. Recent utterances of some representatives of agricultural groups suggest that we still are far short of having acquired such understanding.

Trade among the Latin-American countries themselves has been very limited up to the present. Development of highways and air-

ways is overcoming some of the handicaps of lack of transportation, As production methods improve and standards of living rise, their home markets may expand and trade within the region may increase. However, that development can not come rapidly enough to be an important factor in solving the present problem.

Some months ago the idea of an international cartel to deal with the exportable agricultural surpluses of the western hemisphere received much publicity. While this proposal was realistic in its recognition of the important problem involved, the difficulties in its way made its establishment impracticable. To be effective such an organization would need the full cooperation of all nations concerned in it. Moreover, it would encounter well-nigh insurmountable obstacles in effecting trades satisfactory to all concerned. Another proposal which has been brought forward is that the United States should acquire from Latin America those farm supplies normally going to countries under the control of Germany and Italy. The question of how the United States would dispose of them or how this country would absorb the losses, has not been answered by its proponents. They are inclined merely to argue that the losses involved would be less than the defense costs if European dictatorships secure a foothold in Latin America. As a temporary proposition that contention may not be without merit. However, it might make the longer-run solution of the problem more rather than less difficult. We need to find the most workable way of making the adjustments needed in the longer run rather than to rely on substitutes for adjustments. We must distinguish between palliatives and remedies. If the agriculture of the Western Hemisphere is to continue, means of interchange with other parts of the world are essential.

Post-War Uncertainties

One observation we can make with considerable assurance with respect to the post-war is that it will be a period of uncertainty. Readjustments will need to be made but their nature and extent can only be guessed at while the war is underway. It is unlikely that the world can return to a situation approximating prewar status. American agriculture is vitally concerned with the way in which developments take shape. The problem of export markets for farm products is only one of many. Judging by expressions of some representatives of agricultural groups, politicians and others and the responses

which they evoke, there still are folks who persist in clinging to the notion that a universal solvent for agricultural ills is to be found in giving the "American farmer the American market." They still fail to grasp the fact that the American market is not large enough to provide outlets for the output which American farms stand ready to produce. Some who appreciate this still think that if we only will provide parity or some other attractive price for the domestic part of the agricultural market, the balance can be dumped on the world market, or if need be, subsidies to dispose of surpluses abroad may be used. This assumes a world ready and willing to absorb our surpluses and having ability to pay for them. Unfortunately, this is not a realistic picture of the present or prospective world. How to dump products in a country in which trade is under strict governmental control is a puzzler, which advocates of export dumping conveniently overlook. Subsidies may help products hurdle tariff barriers but quantitative restrictions are something else again. Moreover, there is always the possibility that export subsidies may be neutralized by countervailing duties or other restrictions available for curbing export dumping. Questions also can be raised as to the desirability of a policy of selling products to others at prices lower than those charged our home consumers.

The conclusion to which this leads is that the American people need to develop the best possible understanding of our international problems and relations. Even though we can not foresee what the political and economic world of the future will be, there are certain fundamentals which still hold good. One is that while wars and other activities may change controls over areas and their resources, the variations of climate, resources, population and locations remain and the reason for trade are wrapped up in them. While wars may interfere with trade and lead to changes in the methods of carrying it on, need for it remains.

That being true, American agriculture stands to gain from the adoption of policies which operate in the direction of freeing trade from arbitrary controls and restrictions. The importance of understanding the real nature of trade is greater than ever before. It is also important to recognize that trade arrangements in the present-day world frequently involve political and military considerations as well as economic.

SOCIAL EFFECTS OF THE WAR AND THE DEFENSE PROGRAM ON AMERICAN AGRICULTURE

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If we look at the 32 million farm people as a whole, the social effects upon particular groups may be obscured. To get the full picture we must consider the probable effects of the war and the defense program upon owner-operators, tenants, sharecroppers, hired workers, unpaid family workers, and upon the hundreds of thousands of totally unemployed people who live on farms. Will these groups of farm families share equitably, among themselves and with the rest of the Nation's population, in the benefits and sacrifices that may come to our citizenry in a new situation of changing conditions, in which wars abroad and a total defense effort at home are extremely important factors? What will be the effect upon present disparity between farm and non-farm income and upon existing disparities in income within agriculture itself? Will the chronic peacetime needs that are still unmet be brought into sharper focus, or will they be obscured? Will segments of the farm population suddenly find themselves confronted with new problems and new needs? Will the total defense effort be likely to accelerate, or to retard the efforts of the Nation to meet the needs of farm people?

Need for a Second Line of Defense

We can be sure of one thing about our national defense program—we will bring about whatever industrial expansion is necessary to strengthen our army, our navy, and our air force. These make up our first line of defense. The strengthening of these forces, or the failure to strengthen them at a time when war is a threat, would be of tremendous social significance. But the social effects of the defense program depend not only upon what we do to strengthen the first line of defense, but also upon the intensity of our efforts to strengthen what is often called the second line of defense. To build an adequate second line of defense will require persistent efforts to strengthen all of our people physically, mentally, and spiritually, to assure better economic opportunities to disadvantaged groups, and to prevent disproportionate sacrifices by those in the poorest position to make sacrifices. Just how well this second line of defense is developed is likely to determine largely the extent to which

possible adverse social effects may be prevented, or at least cushioned, and to what extent possible social gains may result.

If in our defense effort we develop only a strong first line of defense, the sacrifices involved and the benefits resulting from the program are likely to be distributed very unevenly. Disparity between farm and non-farm income may be increased. The existing disparity in income within agriculture itself would be quite likely to be increased, since it appears that farm people in areas producing crops for export may have to carry the heaviest burden. People in this group are already poorer on the average than other farmers and are in a bad position to make additional sacrifices. It should be obvious, therefore, that a special responsibility is placed upon the Nation to develop an adequate second line of defense. Neglect of this responsibility not only would be inconsistent with democracy, but also might diminish if not eventually destroy the value of a first line of defense.

Those of us who are interested in maintaining democratic institutions must work now as never before to strengthen democracy and make it work more effectively. We must build it into a stronger instrument for action; action to strengthen both our first and second lines of defense—action to serve better the needs of all of our people, not of a few, not of just a majority, but of *all*. There are too many of the American people today who have very little, if any, stake in our democracy. The best way to strengthen democracy is to see to it that every citizen has a stake in it. Economic opportunity is a part of this, but of equal importance is a justified feeling on the part of *all* citizens that they are important, that they belong, that social and economic justice prevail, and that our democracy is so vital to them that they not only would be willing to defend it but would do so enthusiastically. One result that should come from the war and the defense program is a greater understanding and appreciation of democracy and redoubled efforts to make all citizens participating members in it.

Rural-Urban and Regional Variation in Social Effects

Proposed expenditures under the defense program indicate that a substantial increase in industrial production and employment can be expected, at least through 1942. At least one million men will be added to our armed forces, thus reducing competition for the new jobs by that amount. It has been estimated by the Bureau of Agri-

cultural Economics that the increase in labor requirements during the presently planned defense program will result in the absorption into industrial employment of half of the Nation's unemployed. This should materially increase purchasing power among industrial workers. We can count upon a part of this increased purchasing power to create an increased consumer demand for farm products produced for domestic consumption, and also, because of the war situation abroad, we can expect an even further decrease in the demand for commodities that are produced in considerable part for export.

Even though the location of some of the new defense plants in rural areas which produce for export may increase economic opportunities in such places, and even though increased demand for domestically consumed farm commodities may benefit other rural sections, it appears that a relatively large share of the benefits from expanded defense production are likely to accrue to urban areas, at least so long as the defense program is confined to its present size. Considering the farm population as a whole, there seems to be no promise of great improvement in the level of living of farm people. The likelihood of considerable regional variation in the influence of the wars abroad and the defense program is a factor of great significance to those interested in the problems of agriculture.

Farm families living in areas where the production of domestically consumed commodities is important stand the best chance to benefit from increased purchasing power of urban consumers. These commodities include dairy and poultry products, meat animals, vegetables and some classes of fruits. On the other hand, farm families producing export crops, such as cotton, wheat, flue-cured tobacco, lard, and certain other classes of fruits, may have their real incomes materially reduced if no special preventive measures are taken.

Strong measures should be taken to protect the levels of living of farm families who are not in position to benefit from stronger domestic markets for farm products. Some of these families live in each of the 48 states, but they are most numerous in areas where export commodities are produced and in certain other areas that have come to be known as "problem areas." Since it appears that foreign markets are not likely to be restored completely at the conclusion of the war, farm families in export-producing areas not only will need protection against disproportionate sacrifices during the de-

fense effort, but also over a longer period may need special assistance in adjusting their production more nearly into line with domestic demand.

Let us examine some of the probable social effects in the areas which stand to benefit the most for the duration of the defense effort. Increased incomes, if not entirely offset by the increased prices of things that farmers buy should enable farm proprietors to raise their living levels; to reduce existing indebtedness, thus increasing their security on the land; to use more funds for additional preventive and remedial health measures; for improving housing, and farm buildings; for recreation; for applying additional conservation measures to their land; and for savings.

Since the areas that stand to benefit most are in the main the areas of relative population scarcity in relation to soil resources, the Selective Service training program and increased employment opportunities in cities may create some shortage of farm labor in such localities. This might result in higher wages which would absorb some of the benefits otherwise going to farm employers and would enable the lowest income group of farm people, the farm laborers, to raise their levels of living. On the other hand, should labor shortages become acute in such areas, this might be an additional incentive for further mechanization of farms which, in the long run, might decrease employment opportunities for farm laborers. An increase of mechanization in turn might stimulate an increase in the size of farms, thus decreasing the number of families who could gain a living from a given amount of land.

The increasing incomes in the areas which benefit the most might also stimulate speculation in farm land and a part of the benefits become capitalized into higher land values. This would without doubt, make it more difficult for purchasers of farms at the higher prices to live well later on. This suggests that measures should be taken to prevent undue increases in the price of land, in land speculation, and in further displacement of farm families from adequate family-size farms during the defense effort. It would be highly desirable for farmers to keep in mind throughout the duration of the defense program that the eventual shutdown or great curtailment of defense production may throw upon them a heavy burden of adjustment.

Now let us point out what some of the adverse social effects are likely to be in areas producing crops for export and in other "problem areas"

if we do not develop effective preventive measures. People in these areas, many of whom are already living below any level compatible with American democracy, are the least able to endure still lower levels of living. But they may be compelled to neglect still further their present health problems; problems of malnutrition and of lack of adequate medical care. Their already inadequate houses are likely to disintegrate still further. Soils may be given less protection against erosion. The earnings and levels of living of farm laborers, sharecroppers, and tenants may be considerably lowered. It is probable that the incomes of owner-operators and of landlords also would be lowered, although more of them might have reserves with which to protect their levels of living, at least for a time. Debt loads may mount, delinquencies increase, and foreclosures become common. In fact, the adverse social effects upon farm people in these areas unless preventive steps were taken, probably would be largely an accentuation of social ills already present.

Measures To Prevent Adverse Social Effects

One measure that should be helpful would be to place new defense plants, wherever other factors make such locations feasible, in rural areas of heavy population pressure, particularly where export crops are important, in order to provide a maximum of industrial employment. Another measure would be, through an expansion of the stamp plan or by some other means, to increase as much as possible the consumption by low-income families, in both urban and rural areas, of normally exportable surpluses and of health-giving foods. Possibly the loss of foreign markets may enable us to see more clearly the importance of our neglected market at home. This might well cause us to begin large-scale efforts to help the ill-fed and ill-clothed portion of our population to raise their living levels.

The Farm Security Administration should be supported in expanding its work in rehabilitating low-income farm families. Doubled efforts by the Farm Security Administration, the Agricultural Extension Service, and other agencies in encouraging and assisting farmers in such areas to produce food for home use, would assure ample food and better diets. The resulting improved nutrition would be helpful in safeguarding the health of farm people. Measures to assure adequate medical care at reasonable cost also would be needed. One approach to the solution of this problem

would be through the further development of medical care cooperatives, such as those now sponsored by the Farm Security Administration. If, as seems quite probable, large numbers of both rural and urban youth should be rejected for the Selective Service program because of physical unfitness, the Nation's attention may be so attracted to health problems that a concerted attack to improve the nutrition and health of the entire population may be possible. The improvement of housing in rural areas might well be a part of such a program.

Farming sections where the people are least able to make sacrifices probably would be benefited by a modification in the program of the Agricultural Adjustment Administration to provide for relatively larger conservation payments and, perhaps, new types of benefits in these areas, particularly for the smaller farms. The Soil Conservation Service might join in this effort by carrying on a larger portion of its work in such areas.

To farm families whose living levels suffer as a result of the war, additional employment could be furnished through a Rural Conservation Works program which would protect and strengthen human resources at the same time it was improving the physical resource base to supply future income. A substantial program of this kind not only during the defense program but also after its completion, would be feasible because in the very areas where such supplemental employment would be likely to be needed the most there is the greatest need for additional conservation work.

It is imperative that efforts to maintain full industrial production and employment be continued after the defense program has been completed. The degree of success or failure of these efforts will have a great influence upon the amounts and kinds of adjustment that may be necessary in agriculture at that time.

Relocation of Farm Families

As a part of the defense program not only are defense manufacturing plants being located in rural areas, but also bombing ranges, cantonments, proving grounds, and artillery ranges. Since some of these facilities require very large acreages they may in the aggregate, displace thousands of farm families from their farms and their present opportunities to make a living. If sites in areas of sparse population could be selected for these facilities a minimum number of farm families would be displaced. It would seem very desirable

for the Army to avoid areas of dense population if at all possible. Because of geographical, topographical, and transportation requirements for some of these facilities, the Army has already selected some areas with dense farm population. Agriculture has a responsibility to furnish land use, population, and other information to the Army so that unnecessary displacement of farm families can be avoided.

Although farm owners with substantial equities in their farms who are displaced by the acquisition of land for military facilities may not have serious problems in relocating, no doubt some farm owners, as well as many tenants, sharecroppers, and farm laborers will require public assistance in renting or purchasing farms in new localities or in obtaining new employment opportunities either on farms or in industrial work. Adequate public assistance should be provided to help these families find new opportunities.

This assistance many be needed not only by families who are displaced from their farms by the development of new military facilities, but by families whose economic opportunities have been restricted because of curtailed foreign markets for their crops. Still other farm families are in need of special attention, particularly at this time when threats of aggression require that the nation be strong. These include families, who because of excessively low incomes resulting from poor soil, insufficient land, or other causes, or because of malnutrition and health defects, are unable to make a substantial contribution to national life.

One measure which should be helpful to farm people in these various categories would be to renew and increase efforts to relocate families on new lands which may be reclaimed through irrigation or drainage and where domestically-consumed crops can be grown. The cut-over area of the Mississippi Delta, that has room for 100,000 new families, and the Grand Coulee Basin are outstanding examples of places where such efforts very likely would be successful. The subdivision of some of the larger holdings of good land in areas of relatively low population pressure would also make room for the relocation of some of these families.

It should also be helpful to assist many of these families in obtaining nonagricultural employment. One means of accomplishing this would be through an expansion and further development of the United States Employment Service in such a way as to provide more intelligent guidance for farm people toward available employ-

ment opportunities. There is also a need for the development of an adequate farm placement service as a part of this effort. As a part of this whole program, suitable guidance also should be given to conscriptees at the conclusion of the training periods.

Social Effects of New Employment Opportunities

The social effects upon farm people of the new employment opportunities that are created directly and indirectly as a result of the defense program, should be considered most carefully. Unemployment seems often to be thought of as mainly an urban phenomenon. The unemployment census taken in 1937 showed that large numbers of males of productive age living on farms were either totally or partly unemployed in November of that year. Nearly one million were registered as totally unemployed, a quarter million of whom were receiving emergency public employment, while an additional half million were registered as partly unemployed. However, as is well known to this group, under-employment is an even greater problem in agriculture than is unemployment. Most of the nearly 2,000,000 farms which in 1929 reported a total value of products sold or traded of less than \$600, do not furnish full employment opportunities to their occupants.

Some of the unemployed and under-employed farm people no doubt will receive non-agricultural employment as a result of the defense effort. In the defense program the first effort has been to place orders with existing plants in already highly industrialized urban areas. To the extent that farm people share with urban people in the increased employment opportunities provided by these plants, an accelerated migration of workers from rural to urban areas will take place. New employment opportunities are already increasing the mobility of the population.

In addition to placing orders with existing plants, some of which are being enlarged, the defense effort is causing new plants to be built in rural areas. To the extent that new plants are located in rural areas of heavy unemployment and under-employment, some of which areas are dependent upon foreign markets for a considerable portion of their crops, the plants will provide non-agricultural employment opportunities to farm people in need of additional income without requiring migration to urban areas. This would hold true, of course, only if employment policies provide for a preference to local people. Should the defense program in the future be

increased considerably above presently planned levels, a relatively larger portion of the additional defense production is likely to be located in rural areas. These additional plants would furnish still more non-agricultural employment opportunities to farm people.

The net effect of defense jobs both in the cities and in rural areas probably will be to increase farm-to-city migration and result in some reduction in population pressure on the land. The increase in farm population may be checked, and there may be some actual decline during the next few years. However, it should not be assumed that the defense program will solve completely the basic problems of population pressure on the land and of unemployment and underemployment in agriculture.

An increase in the flow of ideas and standards between urban and rural areas is likely to be an outgrowth of the defense effort. This will be due in part to migration being increased, which means not only a greater net, but also a considerably greater turnover. This will also come about as a result of the Selective Service training program which will bring many farm boys into close contact with urban groups and then return them to farms, at least temporarily.

Where other factors are equal, or nearly so, such as distance to sources of raw materials and manufactured parts, and availability of electric power, machine tools, industrial water supplies and highway and rail transportation facilities, the new defense plants planned for rural areas should be located in areas of heavy population pressure rather than in other agricultural sections. If such plants were to be located in the richer agricultural areas, where rates of natural increase of population are lower, and where relatively high prices of land have made migration into the areas difficult, the plants would not be useful in reducing farm unemployment. Instead they would be more likely to create serious shortages of farm labor in the areas affected.

Farm families in regions where farm unemployment and underemployment are acute would be materially benefited by obtaining employment in new defense plants in their communities. The maximum benefits from this employment, however, can be gained only if the farm people so employed use their greatly enlarged incomes wisely. By provident use of their incomes they can enjoy better living and also improve their land and buildings, retire debts, and create for themselves a stronger base of security. They have the opportunity to build up their farms so that the farms will provide

a better living for them after the defense employment opportunity is curtailed or gone.

While it should be recognized that the defense effort may last for only two or three years, and that very difficult adjustments may be necessary when defense employment is no longer available, it must be realized also that two or three years is a very long time to unemployed or insecure farmers of low income. To a worker who is unemployed, a secure job for two or three years at good wages looks extremely desirable. The same is true for those who have jobs now but expect that they may last only a few weeks. To a sharecropper or low-income tenant with insecure tenure who has a farm this year and is wondering whether or not he can get a farm for next year, two or three years' employment at high wages may be a greater opportunity than he had ever hoped for. Almost any way we look at it, defense work would offer many of these people an opportunity for clear gain. Everything possible should be done to assist such families to consolidate their gains in such a way as to make possible greater security and higher levels of living at the conclusion of the defense program.

Decentralization of Industry

A preliminary report of a study of the decentralization of industry made jointly by the Bureau of Agricultural Economics and the Bureau of the Census indicates that there has been a substantial decentralization of certain types of industry over a period of years. While the preliminary report is not conclusive, it offers considerable promise that some decentralization of industry would be both economically and socially feasible. From the standpoint of a well-balanced total economy in the Nation, further decentralization of industry would appear to be desirable. Because of military and strategic considerations, the defense program probably will stimulate further decentralization of our industrial plant.

Some of these new defense factories in rural areas will probably be converted to peacetime uses after the major defense effort has been completed. This will provide some non-farm employment opportunities in the future, in areas not now industrialized. A decentralized defense production program may give an impetus to certain trends in decentralization that are already perceptible. In areas of meager soil resources, and of few crop acres per farm, where farm families are unable to get a decent living from the land,

expansion of non-farm economic opportunities would be desirable. Efforts to stimulate local industries in such areas might well accompany efforts to facilitate the removal of farm families to farming opportunities on better land. A certain amount of industrial decentralization might be considerably better in the long run than piling up more people in congested urban centers.

No matter what the outcome of the wars abroad may be, it seems quite likely that for many years ahead this nation will experience a trend toward greater domestic self-sufficiency. Certain seaboard cities may become relatively less important. Other towns and cities, located inland, and more geographically dispersed, may grow. Inland areas may play a relatively larger role in national life. Greater national self-sufficiency may call for a re-examination of balance in our total economy and cause still further decentralization of industry.

The great expansion of rural electrification during the past five years, during which period the number of farms that have electric power available has increased from 10 to 25 per cent of the total, has contributed to making decentralization of industry more feasible. The location of defense plants in rural areas may in turn stimulate a still greater expansion of rural electrification, bringing with it many benefits to farm people.

Training of Rural Youth

Labor requirements for the expansion of defense industries will demand a large amount of training of new workers. Steps are being taken to assure that rural youth will have the benefit of this training, along with workers in urban areas. Military training under the Selective Service program will be given to a million young men a year. Because of the nature of the training required for modern warfare, this training program, together with the training of youth for production in defense plants, will assist in making possible, over a period of years, the acquisition of special skills by a larger portion of our total population. After the main defense effort is over, the skills acquired by rural youth and other workers from farms will equip them for full or part-time non-farm pursuits during peacetime, thus relieving some of the population pressure on farms, provided that non-farm employment opportunities are available. This new training program for youth may even lead the general public to question the adequacy of present adult and public school educa-

tion in rural areas. The reexamination of rural education might conceivably result in some changes in educational directions. It might encourage, for instance, a type of training, even after the defense program has been concluded, that would better equip rural youth who are not needed on farms to find useful non-farm employment.

The Need for Planning

In national mobilization for total defense, all citizens are reminded of their obligations to help in the defense program. The fact that they participate in a national effort makes them more conscious of government at the national level. It seems quite probable that the defense program will hasten present trends toward making the Federal Government relatively more influential than local units of government. Although such a trend may be neither altogether bad nor altogether good, we should recognize that it is almost sure to be manifest.

In this situation, since farm people are relatively "localists," it would be highly desirable to facilitate their opportunity to express themselves in influencing national policies, particularly those policies affecting agriculture. The present Cooperative Land Use Planning Process can further implement such expression. Through this device farmers, along with "experts," can think through their problems together, with the assurance that their conclusions will receive consideration at all levels, neighborhood, community, county, state, regional and national. An expansion and intensification of this planning program directed toward consideration of the impact of the war and the defense program upon agriculture should be very helpful.

In summary, up to the present the social effects of the war and the defense program upon agriculture have been, in the main, to accentuate problems already in existence. Whatever the outcome of the war, it is certain that world relationships will be very different from the past. This will require future adjustments within agriculture. It seems quite certain that there already has been, and that there will be in the future, a considerable regional variation in the social effects of the war and the defense program upon farm people. The probability seems to be great that agriculture as a whole will not benefit substantially as a result of the war and of the presently planned defense program. Some areas may gain slightly,

whereas other areas are likely to be further handicapped unless constructive measures are taken to prevent undue suffering. Should the defense program be enlarged greatly in the future, the social effects undoubtedly will be intensified. At the conclusion of an expanded defense program, there will be an even more acute need to make the adjustment to peace time requirements in such a manner as to avoid the creation of new social problems.

Social effects in the future are uncertain, because they depend so largely upon the scope, intensity, length and outcome of the war. They depend also upon the magnitude and duration of the defense program, and upon the manner in which this program is finally liquidated. In addition they will depend upon the extent to which efforts to develop a strong second line of defense, along with the first line, take the form of real action to give more people a larger stake in democracy.

A crisis such as the present one brings into question all of our institutions. This calls for a re-examination of existing farm programs along with other activities. New approaches, and changes in emphasis, in the economic, social, and political spheres may be needed to insure human welfare. Democracy has a responsibility, as well as an opportunity, to demonstrate its capacity to serve the needs of all citizens, both during the defense program and at its conclusion.

It is our hope that the concerted effort to strengthen the nation—an effort stimulated by the present world crisis—may progress on such a broad front, not only while we are endeavoring to achieve total defense, but during the inevitable readjustment period to follow, that we may find solutions for the important social problems confronting agriculture and our whole national economy.

AMERICAN AGRICULTURE IN THE NEW WAR AND DEFENSE SITUATION

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Let me first lay myself a groundwork for my discussion. This takes the form of a distinction between a "total defense" program for the country and one which is merely a stepped-up peacetime defense program. Mr. Smith speaks of the present program as "total defense" in the second paragraph of his paper. He is wrong about this. Later in his paper he distinguishes between the "presently planned defense program" and one that is "increased considerably" or "enlarged greatly." These may be "total defense"—the present plans are not.

"Total defense" in a word, is defense against total war, and against total war in the near future. A program of total defense need not assume that we are going to enter actively into the fighting; but it could assume that possibly we may do so as soon as next spring; and still more possibly within a year; and further that it is only safe to *proceed now as if we were in the war without being in it*. The main reason that we must proceed this way is that Great Britain which is now doing the fighting needs the full effect of a total defense effort on our part.

I am making no argument for this kind of a defense program at this point or anywhere in my remarks; I am merely saying that we need to distinguish between this kind of a program and one which is merely a stepped-up peacetime defense program—which is what we have now. It is this latter that Mr. Smith has mainly assumed in his papers; but he has done so good a job of covering the phases of such a program that it is not difficult to translate most of it to a total defense basis. Qualitatively—in terms of the elements comprised in such a program—there is little to add. Mostly what is called for is increasing the quantities of the various parts of it.

The simplest way to show what the present stepped-up peacetime program involves is to cite from Mr. Bean. He speaks of the spending of 5 billions more in 1941 than in 1940 and of 10 billions more in 1942, plus some foreign orders and some new plant and equipment building out of private capital. A total defense effort will involve a doubling or trebling of all these items. We were spending at the rate of well over 20 billions a year at the end of the last war,

and loaning freely to our allies besides. Modern war is much more ravenous than that even of 22 years ago. As proof that such a program is not wholly fantastic I need only cite President Roosevelt's statement of around ten days ago giving priority over civilian needs to 2 billions more of British orders; and the new defense board's recent declaration of policy.

Since most of you, however, seem to expect, and no doubt prefer to expect, a milder type of defense program, and the papers you have heard largely assume it, I shall not be doing duty to my assignment unless I also proceed for a while at least on such a basis. I find myself coming out at the same general place as does Mr. Smith as to the failure of such a program of itself to go far in the direction of lifting up the large fraction of our farm population that has been living on a low plane, and with Mr. Smith that it will make even worse the condition of the large group of low-income farmers now producing for an export market. I accord fully with them as to the urgency of instituting direct and vigorous measures to meet this aspect of the situation. As to Mr. Bean's¹ statement that basically the problem is one of "more industrial activity, and of non-farming occupations for surplus farm labor," my only comment in this paper is that the present defense program will not go over half the distance necessary to attain the ends envisaged. He is ten-times right in his statement that we cannot expect such increase of urban employment as will accompany such a program, automatically to "wipe out under-consumption among the lower one-third in the cities, nor malnutrition in that and other groups."

Increases in defense expenditures to 10 billions, plus the accompaniments mentioned, will not raise gross farm income almost automatically as he assumes to 10½ billions,—as a simple application of the hypothesis of a relatively stable proportion of the national consumer income going to agriculture. This is one of the times when all bets based upon such simple assumptions should be declared off. It will take a mild price inflation, with some spiralling of prices and wages, to raise gross farm income to 10½ billions in 1942; and net farm incomes in that case will be raised less than Mr. Bean presumes.

There is of course a fundamental inconsistency between Mr.

¹ Reference is to a paper by Louis H. Bean: Relation of industry to agriculture with special reference to defense and the lower third, to appear in *American Jour. Agron.*

Bean's case for stable physical amounts of foods consumed and stable proportions of total income spent for them. The position of several workers in the Department of Agriculture seems to be that having more income, the consumers simply pay out more of it for virtually the same number of pounds or calories of food. There must be more to the subject than just this. One factor in it is the common effect of changing price levels. This will need to be reckoned with in the present situation.

The loose way in which the data on agricultural unemployment are often used these days is becoming alarming. Of course none of the statistics on unemployment now available are comparable with those in 1929. At least a million or two urban workers are now rated as unemployed that were not so rated then. The comparisons are even more misleading in the case of farm workers. We can agree with Mr. O. V. Wells that only 9 or 10 million farm workers are required to produce for our present domestic and export market. But this does not mean that the difference between this number and the present 12 million workers estimated on farms, are all unemployed. Some of them really are; but for the majority, all we can say is that they could be spared by some reorganization of agricultural production, part of them very easily.

Similarly the commonly repeated statement about one half of farm families producing only 15 percent of the farm output must be used very carefully. It is true only in a physical sense—tons, bushels, bales, etc. In terms of *real* farm family income, the ratio is considerably different. The National Resources Board figures cited by Mr. Bean are subject to somewhat the same defects.

These dubious features in Mr. Bean's statistics do not, however, significantly affect his conclusions as to condition of agriculture under the mild defense program assumed; nor invalidate in the least Mr. Smith's program of needed types of remedial measures. They are merely details which are of professional interest at a meeting such as this. When we go before the lay public to discuss agricultural conditions and programs, we will do well to forget such trifles.

Of vastly more import is the good chance that if the defense program continues as planned, the coming Congress will do very little or very few of the things outlined as needed in Mr. Smith's paper. The prospect under such an assumption takes form about like this: The industrialists will so far as possible take care of the military

defense requirements set up with present plants. In a few tight spots, the government will build plants. The profits of industry will rise. Part of these increases will be drained off in taxes. There will be enough left, however, so that labor will put up a fight for wage increases; and obtain concessions here and there.

The farm organizations have already begun their struggle to give their members a share in the gains. The American Farm Bureau Federation, after its experience with parity payments in the last Congress, has decided to fight this time for prices fixed by means of loan advances at 85 per cent of the parity-price level. The Commodity Credit Corporation is to be left holding the bag. Further response of production to these higher prices is to be headed off by rigorous enforcement of market quotas. The Farm Bureau organization defends its position by saying that the industrialists are already being well taken care of with their negotiated prices and guaranteed depreciation, that labor's earnings are rising with fuller employment at amply protected and even rising wages, and that if agriculture does not step in now and get the parity prices it has been pledged since 1933, but never received, it will be playing just plain dumb. One can predict a fight in Congress over this issue, fuel for which will be supplied by every report of rising corporate dividends, of wage increases, of labor union membership drives, and of threatened and actual strikes.

A likely outcome will be some further rise in the commodity loan rates on the basic farm products; or some equivalent of this such as a stepped-up program of government purchases. The general price level will probably be rising a bit by this time due to the appearance of some scarcities. This, together with the higher prices for some farm products, will furnish the best possible support for demands for wage increases. Thus the spiralling process will have begun. The higher prices fixed for farm products will need to rise some more to be as near parity as they were. We need to remember in this connection that both in 1934 and in 1937, the index of prices paid by farmers reacted almost as promptly as did the index of prices received. As a net result in general, few farm families will have any larger real incomes than before. Only those whose members have obtained jobs in defense or allied work will have been appreciably helped.

Of course Congress could help the groups needing aid most in the several supplemental ways indicated in Mr. Smith's paper. But it

will have spent most of its energy and resources on raising the loan rates and will do little of anything else. It will probably appropriate something more for the stamp plan and other forms of surplus disposal. But getting even 5 million persons to buy an average of \$2.30 worth of food per month with blue stamps (the October average was 2,210,000 persons at \$2.30 each) will go only a small part of the way toward meeting the nutrition needs of the nation.

If the defense program continues according to its present plans, and the war situation forces nothing more upon us, thus will we find ourselves a year from now; and nothing much different in 1942, except that the marketing quotas will begin to break down; and Congress might need to pass some new monetary legislation providing more control over the price level.

By 1943, the peak of emergency defense preparation will have passed, and with this will come the let-down forecasted in both the papers. Agriculture and the nation will be on the way pretty well back to where it was. The nation will have bought itself a military and naval establishment, and have gone in debt for most of it. The people as a result will have had a larger income for a few years. But the same old problems of unemployment in cities, and underemployment on farms, and underconsumption in both places, will be coming back again with much of their former terror.

The Congress of the United States will have been largely futile during these years, and by 1943 and 1944, will be altogether so—as it was during the last years of the Hoover administration. It will have been tied hand and foot by contending factions each seeking to get as much as possible for themselves. The lines of what we already see forming will by that time have been hedged in by taut wires. The history of France and England in the last six years will begin to write itself again in the United States. The new 1945 administration will be conservative.

* * *

Now let us consider how different the course of history in this country will be if the war situation forces a total defense program upon us in the next two years or so; or if we choose it although not altogether under dire necessity of it.

In such a case, we will begin shortly to develop much more plant capacity in vital military and naval industries. We will be building for Great Britain as well as ourselves at the start—later for our-

selves and probably the rest of the British empire if the Nazis have conquered the Isles. In those lines which produce materials needed for new plants, we shall introduce double and triple shifts. We will begin to use all our training resources to train more men for these industries. Less essential civilian consumption lines will be curtailed for a while. The new plants will be built more largely in rural areas than before. The surplus population of farms will be trained for industry. The greatly increased earnings of the populace will go into purchase of government bonds. Prices of staple farm and industrial products will be fixed—to keep them down, not up. Vigorous measures to check inflation will be imposed.

The principal impact of such a defense effort on agriculture other than drawing off its surplus labor, will come from the adoption of a vigorous nutrition program. You may call the civilian population the "second line of defense" if you wish—I don't think the term fits modern conditions of warfare—but please don't put nutrition under this head. Our present undernourished fraction of the population is neither able to serve in the army nor to stand the pace in modern industries. Sir John Orr, the British food specialist, was able in a few months of proper feeding to qualify for the army 270 out of a sample of 300 draft rejects (excluding those unsound of limb and the like). To get the needed food consumed, there will need to be a vigorous educational program; but also readily available foods of the right sorts. To get this produced on farms needing most to shift their production will require a careful coordination of production and consumption adjustment. This will, in turn, require a coordinating agency in the Department of Agriculture, working in close conjunction with State and local units, and with producer and consumer committees, that is more effective, and has more authority, than what we have now.

* * *

It does not seem probable that the new Congress will be able to pass any significant revisions of the present farm legislation within several months. In the meantime, the defense situation may become so acute that the concern of Congress and the nation will pass from dividends and wages and parity loans, to securing necessary coordination of production and consumption of food products, and setting up effective machinery for it.

* * *

At first thought, the aftermath of a total defense program will present a much more difficult problem than that of a mild defense program. Perhaps this would not prove to be the case. We will at least have had everybody at work; and will have agricultural production and consumption geared to each other better than before. Planning for such a period should begin now. There should ensue an expansion of consumer goods production of the kinds that people will shift to as bond buying slackens. Then we will need a large program of self-liquidating loans, including notably housing, both urban and rural, but especially rural; land improvement loans, woodland improvement loans and the like. As much of this as possible should be financed by private capital, using the method of government underwriting if necessary. The defense program itself will subside slowly. Thus military road building will be underway indefinitely; and flood control and waterway development.

International Aspects

Like everything that Dr. Jesness writes or says on international agricultural trade, his present paper is sound, well-balanced, and well-informed. His plea for more educational work and developing a better understanding of trade relations at this time deserves to be taken with high seriousness. Situations of one sort or another are in the making which may call upon the United States to abandon in large measure its traditional stupidities in such matters; or possibly even one in which it may have a chance again to assume a leadership toward freer trade relations such as confronted it in 1921, which if it had assumed might well have prevented the collapse of Europe in 1929 and afterwards. Dr. Jesness discusses practically all of these alternative situations, and does it very capably.

If I have any differences with him, they are only in emphasis. I might, for example, suggest that "empire preferences" may not be such a factor in our relations with the United Kingdom and the Dominions as in the last decade. The Ottawa conference was not as large a factor in these as is sometimes assumed. In the three years from 1929 to 1932, the year of this Conference, the dominions' share in United Kingdom imports grew from 37 to 44 per cent; in the next five years, only from 44 to 51 per cent. At least two not unlikely outcomes of the war might throw the United States into a powerful economic bloc with either this whole British entente, or with an important group of the dominion states. The collaboration

now underway in war time may ripen into something very significant afterward. We should be exploring all of the implications of such a functioning unit at this time and be preparing our people for it. The two Indies may be involved in such a development; and of course the hemisphere problem.

So far as I know, no one has yet worked out an economic plan for the western hemisphere conceived as an economic bloc—a sort of customs union. It would not be possible to get this accepted by our people now; but if we had the plan, we could be working toward it as a goal. We could now be directing our loans to South American states in such a way as to enable them to fit into such a plan of economic division of labor to best advantage. We could be helping them to develop their manufacturing as well as their agriculture.

It is not enough to be discussing trade relations with Central and South America in terms of a cartel, which looks unduly formidable. Headway can be made with individual commodity agreements—like the coffee one which is well in hand.

The trade agreement program is too easily cast aside in much familiar discussion today. Narrow the agreements down to a small list of products—perhaps only two or three—in which the two countries are particularly concerned, and they may have the same effect as barter arrangements and have definite advantages over them.

I would make a point of the need for freeing our agricultural surpluses for export. Present loan arrangements keep the prices of too many products above the export level. We have been doing something like this most of the time since 1929. Arrangements can be made for putting export surpluses into special pools, with sales to be made at prices that seem good economy at the time. In the end, production for such sale should stand on its own feet—not be subsidized out of the treasury. This means that the lower export prices should be passed back to the producers. Dr. Jesness might well object to such an arrangement, applying the nasty word “dumping” to it. The question is really one of whether or not to engage in bartering. It seems quixotic for this country not to accept this practice in a world given over to it for a while at least. If we are going to barter, then we are going to sell at cut prices—and the grower should take the cut. (Call it “dumping” if you like.) It would be best if plans for such barter exchanges could be arranged in advance of planting.

I am disposed to differ slightly with Dr. Jesness on two points after reading with him the monumental study on world agricultural trade by Bacon and Schloemer to which he makes reference in a footnote. I would say that the present restrictions on agricultural trade are more tied up with the depression which hit Europe in 1929, and less with desire for autarchy, than his presentation implies. Most of them were imposed from 1929 on—they began about the time we were passing the Agricultural Marketing Act. Perhaps there is a ray of hope in this circumstance. Secondly, Europe after all, in spite of careful organization on a continental scale, would find it difficult to grow enough feed grains for the livestock it needs for its supplies of meat and dairy products; and also it would soon exhaust its own supplies of phosphate fertilizer.

The strongest need which such a Europe would have for food from the western hemisphere would rest, however, as Dr. Jesness indicates, not on dire necessity, but on the discontentment of its people with too much drabness in the diet.

SOME CURRENT PROBLEMS IN AGRICULTURAL CREDIT

A. G. BLACK

Governor
Farm Credit Administration

Ours is a credit economy. In modern business enterprise credit occupies a vital position. It serves to finance purchases and sales and with it we promote the growth of existing industry and develop new industries and enterprises. In the exercise of this dynamic function corporation finance has come to be a dominant factor in the organization and management of business, but to a considerable degree ownership and active management have been divorced.

Agriculture as an industry is no less profoundly affected by the development of a credit economy and by the machine process than is industry. In agriculture, as an industry, credit provides a means for bringing together capital and management in the development of natural and human resources. Since the major security a farmer has to offer for credit is the land and the improvements on it the real estate mortgage has developed as the principal security for credit to agriculture. With the aid of this instrument the land of this and other countries has been developed under individual management.

In farming the relationship between family affairs and business is close and it is desirable that both ownership and management of the farm enterprise be combined more generally in the hands of the individual operator. This is not equally true of industry. Therefore, forces which tend unduly to prevent the actual operators of farms from owning or endeavoring, through use of credit, to become owners, should cause us serious concern.

The mortgage has enabled many farmers to retain title to a tract of land even though all do not gain complete ownership. The objective which we have held up for mortgage credit has been ultimate ownership of the land by the borrower and through it the operator was to achieve full ownership. Through wise use of mortgage credit we seek to broaden the opportunities for ownership by farm operators and not to narrow them. So far we have progressed slowly in realizing this objective through credit. As a matter of fact, ownership and operation are becoming further divorced in the cultivation of the land. Consequently we are confronted today with the need

to examine more closely some of our ideas about the mortgage as an instrument for achieving ownership and furthering individual operation of the farm.

Although the extension of credit to corporate enterprise and to agriculture has served a social function it is only within comparatively recent times that society has sought to exert itself and its responsibility in directing the flow and the function of credit. Even more recent is the role of the Government, through a variety of public and quasi-public agencies, as a lender to industry and agriculture.

Early in our history, however, the Federal Government used its control over money and the public domain to foster individual enterprise. In this, the land, as a primary resource, has played an important part. A conspicuous example of this policy was the granting of vast tracts of land to the railroads in the sixties. On the basis of these grants the railroad industry, an enterprise that had little or no market value before its rails were laid and its traffic developed, was given substantial aid.

In more recent years financial management and regulation, through such agencies as the Federal Reserve System and the Securities and Exchange Commission, have played a more important role in directing the flow of credit into industry and in shaping credit policy. Only within the last decade, however, has the extension of credit with the Government as the lender become a significant factor. The use of Government credit in this direct manner has seen its broadest development in the RFC through which Government credit has been made available to private enterprise to foster needed industry, provide work and maintain existing plant and prevent forced liquidation.

Emergency has played a vital part in developing the use of Government credit extended to private enterprise as an aid to the development of the economy. In the World War and the readjustment period that followed it the WFC used Government credit to foster needed industry and to facilitate readjustments within industry. In our present national defense effort Government credit and outright grants to key industries are once more expanding the public's investment in the industrial plant of the nation. Likewise it was the depression, an emergency of another kind, that quickened the public consciousness of our Government credit mechanism in recent years, when Government credit was used to cushion the

shock of an economic crisis that threatened our entire economy.

Because the broader functions of credit in the promotion of the general welfare, and particularly of Government credit when it is extended to private enterprise, have only been sporadically emphasized, usually only in periods of stress, we have been slow to develop a public policy with regard to its extension or the direction of its functions. Despite this fact, however, the use of the credit of the Government for the development of business enterprise has been growing steadily throughout a decade and has come to include a great variety of interests. Corporate enterprise of all kinds, owners of urban housing, and farmers have all been included in those groups to which the Government, directly or indirectly, has opened its credit facilities.

Is this development simply a matter of an emergency or is it here to stay? Although the life spans of several of these Governmental corporations have been renewed from time to time it is becoming increasingly apparent that this is not a temporary phenomenon with which we are dealing. It is recognized more and more that this sort of activity is not only here to stay but is essential to the general welfare.

That being the case the time has come to agree upon measures of public policy that will shape permanently the place and the purpose of Government lending to private enterprise in directing the forces that shape our credit economy. We cannot afford to leave a matter as vital as this to chance. So far the development of Government lending policy has been more or less haphazard.

The importance of credit extended by the Government is indicated by the fact that within a single decade out of a long-term debt amounting to \$74,000,000,000 owed by corporations, urban house owners, and farmers in 1939, a total of \$6,400,000,000, or more than 8 per cent, was owed to Federal agencies. While this may appear relatively small it is five times as much as was owed to Federal agencies in 1929.

Ten years ago considerably less than 2 per cent out of a long-term debt of \$87,000,000,000 was owed to Federal agencies. At that time the only Federally sponsored agencies making direct loans to private individuals were the Federal land banks, which were really only quasi-public institutions, the emergency crop loan offices, and Federal intermediate credit banks which operate as discount institutions.

Today 3 per cent of the corporate long-term debt and 10 per cent of the urban mortgage debt is held by Federal agencies for a total of \$3,800,000,000. These latter are direct loans from the Government and compare with \$700,000,000 in direct mortgage loans to agriculture. While the direct mortgage loans to agriculture represent only a small fraction of the total, the amount held by Federally sponsored agencies, including the Federal land banks, accounts for 38 per cent of all farm mortgages outstanding in 1939.

Today several other public agencies, in addition to those under the Farm Credit Administration, are making loans to agriculture. The Farm Security Administration is making farm loans in a field that once was assumed not to exist. The CCC as well as the REA makes loans to farmers while the RFC may do so.

It is significant that industrial corporations and urban home owners, and not, as is popularly supposed, the farmers, have been responsible for the largest development of direct lending by the Government to private borrowers. Although the volume of direct Government long-term loans to agriculture is smaller than that extended to other private borrowers, it is not the best measure of the importance of this aid to the industry. Yet it suggests something else of great significance. The use of credit in agriculture has not been directed as broadly and consistently toward the development of agriculture as a whole as has been the case in industry generally. Agriculture has consistently been the stepchild of our capital market.

Even in colonial times the back country was concerned with the money question and the ever present mortgage. In opening the public domain the land speculator has always preceded the frontiersman and even the Homestead Act of 1862 was shot through with speculation. By 1890 about four times as much land had been granted to railroads as had been proved up for final entry under the Homestead Act of 1862. The increment in land values was the principal basis of credit extension and frequently of repayment down to the World War and as a result of this situation, our farmers have been, to a large extent, dealers in real estate from settlement days down to 1920.

Lacking capital of their own the great agricultural areas of this country have been forced to borrow from outside lenders. This lending has largely been by private financiers and from it many lenders have in the past reaped a rich harvest in the form of interest

and dividends. Lending on farm land as security also has tended to increase absentee ownership.

Until about two decades ago there was an enormous inequality in interest rates charged for both short- and long-term credit to agriculture among the farming regions of the country. All too frequently the farmer's capital needs have been supplied through short-term obligations or through credit instruments requiring too frequent renewal. Generally speaking, throughout most of the history of our agriculture, we have lacked a positive policy which used credit as an instrument for the development of a better balanced industry which enjoyed greater economic stability.

The pressure of high credit cost has been one of the factors forcing unwise expansion in the production of cash farm crops which resulted in low prices and reduced income to producers. Furthermore, the policies that have governed the extension of credit have not been in the past, and in many respects are not yet, suited to the particular needs of agriculture. Loans have not been adapted to the production cycle of the borrower. Loan and collection policies have not been properly related to the productive characteristics of the farm, the farmer's need for working capital, and the slow rate of turn-over in farm capital. There has been overlending to agriculture in times of high prices and a much too drastic withdrawal of credit from the farming regions in times of capital stringency. Land speculation and overloaning have too frequently characterized private lending.

It was such conditions as these that started the agitation for some reform in the farm mortgage system of this country early in the present century. The fact that many of these conditions still persist today suggests that more fundamental reforms are needed. The Country Life Commission in 1908 and the Walsh Commission in 1912 both recommended improvement in the system of rural credits.

But reform was slow in coming and not until after 2 years of hearings was the Fletcher Bill, creating a system of Federal land banks, approved in 1916. Many proposals for a rural credits system were offered but the one which prevailed was patterned on somewhat similar systems in Europe. Although federally sponsored, the Act under which these institutions operated required that the borrowers acquire a stock interest and each borrower assume part of the risk of lending to the members of his local association.

At the same time the Fletcher Bill was being considered, the Congress also had before it the Norris Bill which proposed to establish a bureau of farm loans in the Department of Agriculture for making loans direct to farmers. The fundamental conflict between these two bills was indicative of the different points of view that existed even then as to the function of the Government interest in rural credits. It anticipated the difficulties the new land banks were to encounter later, and raised questions that have not yet been answered.

Probably the prime purpose in the minds of the framers of the first land bank legislation, insofar as the record speaks for them, was to enable farmers to organize for the purpose of attracting a permanent flow of capital to agriculture. In agriculture the emphasized objectives in setting up the land banks were the checking of the growth of tenancy and the promotion of farm ownership. Through the establishment of this system it was hoped that interest costs would be lowered, that the large regional variations in rates would be eliminated, and that a dependable source of credit would always be available to farmers.

Once these things were accomplished many assumed that the problems of a growing trend toward tenant farming, the pressure of high interest rates, and the abuses of absentee lending would be met. Although the problems of the farmer in the short-term credit field were becoming acute in 1916, the Fletcher Bill did nothing about them. In fact no attempt was made to deal with these needs until the Intermediate Credit Act of 1923 was approved and even it was not adequate.

How much have we accomplished through the establishment of the land banks toward a realization of this not too ambitious program? The interest cost of farm mortgage credit has been lowered over wide areas in agriculture. Loans are made for longer terms and on an amortized basis. These benefits we know are being received in almost 40 per cent of the total farm mortgage debt now financed through federally sponsored agencies and some of them have been extended to borrowers from other lenders through competition. These are significant but certainly not vital contributions.

But what of those broader objectives of increased farm ownership, strengthening of the economic position of the farmer, greater security of tenure for the borrower, and an ample supply of credit continuously available? Insofar as mortgage credit can be con-

sidered a mechanism for their accomplishment success has been limited. About 42 per cent of the farm land of the nation is operated by tenants today, which is almost 11 per cent higher than it was in 1920, and about two-thirds of the total farm mortgage debt is carried by owner-operated farms.

The large volume of foreclosures and the high frequency of delinquency which have characterized farm mortgage lending in recent years is abundant evidence of the failure of past policies to insure reasonable stability of land tenure. Likewise the depression showed that the credit needs of agriculture were not being met adequately either by the land banks or from private sources.

The farm loan legislation of 1916 and 1923 emphasized two major objectives. One was checking tenancy and promoting farm ownership, and the other was strengthening the economic position of farmers generally. Intermediate credit legislation in 1923 was discussed primarily as a means for preventing the forced liquidation of livestock which took place in 1921.

It may be that sometimes we expect credit to do the impossible, but it is obvious that both pieces of legislation failed in accomplishing either of these objectives. Tenancy is growing and the concentration of the land in farms in fewer and fewer hands continues.

The 1930 census revealed that two-thirds of all land in farms and over half of the harvested crop-land were operated by less than 20 per cent of all of the farmers. Is this building a farm economy based on the owner-operated family farm? Are we to have a credit system that thinks only in terms of the 20 per cent without giving sufficient attention to the other 80 per cent?

More significant is the end result of these factors, namely, a failure to foster, through the use of credit, the development of agriculture as an industry. In making a loan to the individual farmer, account must be taken not only of his particular problems but of the problems of agriculture as a whole.

There has been a great deal of borrowing by farmers, but what can be said of the effect of this on the position of agriculture as a whole? In terms of the human and natural resources being expended in agricultural production today we are confronted with two broad types of problems.

On the one hand, we have to build back through conservation our depleted soil, water, and forest resources. According to an erosion survey made in 1934, approximately 52 million acres of

land have become essentially unfit for tillage, 151 million were severely damaged, and more than a billion moderately damaged. Three billion tons of soil are said to be removed every year by erosion from the billion acres of our total land area that is now in farms. On the other hand there are estimated to be 3,000,000 men living on farms, half of whom registered in 1937 as totally or partially unemployed and the other 1,500,000 and their dependents barely exist on gross cash incomes from their farm operations, averaging less than \$200 per year.

Added to these problems are those emerging as a result of shifts in foreign demand for our farm products growing out of the first World War and which are being made more acute by the second World War. These changes, along with the great changes in technology, call for major adjustments in our agriculture. A recognition of these problems by credit institutions and the adoption by them of policies which will make credit available to farmers at satisfactory terms for the purpose of enabling farmers to make necessary adjustments is needed.

In dealing with changing agricultural conditions, the Federal land banks now under the FCA have been confronted with many problems. The land bank system was organized at a time when land values were relatively high. Farm land values reached their peak in 1920, and, although they remained above the 1912-14 average until 1931, they declined steadily throughout the entire decade and a half.

In order to accomplish part of their purpose, namely, to reduce interest costs and provide amortized loans, it was inescapable that refinancing would bulk large in land bank operations from the outset. In recent periods of distress in agriculture the volume of mortgages the land banks have taken over from other lenders has been abnormally heavy. This was particularly true in 1933-35 when the refinancing undertaken was on a scale that no private lender could have considered.

In this phase of their activities, the Federal land banks definitely responded to the dictates of sound public policy. Without Government aid this would have been impossible, and at its insistence it was undertaken. The general welfare demanded, and private lenders, investors, and farmers urged, that foreclosures be stayed; that the drop in farm incomes and land values be halted; and that the need for debt adjustment in agriculture be met.

When the FCA was created by Executive Order in 1933 it moved to rescue the existing land bank system and private lenders on farm mortgages, both of which were then headed for bankruptcy, but it was also concerned with meeting many other problems which had created a critical situation in agriculture. In meeting this situation, the FCA had to be guided by other standards of lending than the rules of thumb. A broader policy for lending to agriculture was adopted, but it is significant that this change was forced by an economic debacle.

Organized as a quasi-public institution but with a substantial amount of Government subsidy written into the system from the outset, the Federal land banks have been described as a cooperative. Undoubtedly this effort to represent the system, both to agriculture and to the public generally, as a cooperative has been sincere on the part of many. But the fact of the matter is that the system has never been a true cooperative.

Experience has shown that to be truly cooperative and to give farmer-borrowers greater participation in the system some changes will have to be made in the existing land bank structure. The real problem is to provide the kind of national credit system farmers and the nation need. The stake that the Government has in the land bank system is tremendous, both directly and indirectly, and this is not likely to diminish materially.

Under the situation which has obtained in agriculture over a period of years and the mandates of Congress that the FCA deal with this situation in the public interest its public functions have been developed almost to the exclusion of any other concept of its purpose. As a result, we are rapidly coming to a parting of the ways.

Should the FCA continue its public function and seek to serve the needs of all agriculture and the nation in a constructive way? Or should it abandon this function, or make it only incidental, by serving a limited field by lending only to farmers on a basis of making maximum profits?

This question is not new. It was foreshadowed in 1916 in the debates over the first farm loan act. As time has gone on the need for an answer to these questions has become more acute as the problems of agriculture have grown more serious and existing private lending agencies have not been able to cope with them.

Congress frequently in the past ten years has shown a desire to reconsider this whole problem in the light of the realities in the

present situation. Private lenders have been conscious of this problem and have turned to the Government for aid when their farm loans threatened their solvency. Likewise they have been content to leave undeveloped large segments of agriculture where the need for credit is acute but where the security is unattractive because of the risk involved. But if we are to have a balanced and a prosperous agriculture, these fields cannot be allowed to go undeveloped.

A wise public policy interested in building a sound agriculture and a strong national defense calls for a credit policy that considers not simply the need to rescue lenders when they get in a jam, but one that takes account of the welfare of all agriculture and the nation as a whole.

What should constitute a public policy in farm credit? Its loan policy to agriculture should be one that definitely seeks to improve the economic position of the borrower and further his progress toward ownership. We need to encourage the family-sized farm as the basic unit of operation in agriculture.

The drift away from farm ownership and away from the family-sized farm are tendencies which strike at the roots of our democracy and at a basic element in our national life. Unlike industry there is a definite and close relationship between family affairs and business in agriculture. Owning becomes desirable, if not necessary, to insure a permanent home for the farm family.

We have adopted a national policy favoring lower interest rates and through the direct loans of the RFC and housing loans, Government credit is being translated into a policy of cheaper credit for their borrowers. But Government policy alone is not responsible for low interest rates; a surplus of loanable funds also has had something to do with bringing them about. Existence of the RFC assures the business community, however, that low interest rates will continue to be available to industry through its channels. At a time when industry is expanding and its needs for credit are likely to increase, this assurance is of vast importance.

The FCA should be able to perform a similar function for agriculture and be the medium for making available to agriculture the benefits of a national policy favoring low interest rates. If agriculture is to have the same benefits as industry this is essential, but under existing conditions the FCA is not able to function as effectively in this respect for the farmers as it should.

We have tended to overemphasize in the past the extent of the

self-sufficiency of the farm as a unit. It is estimated that in 1939 farmers paid out over \$1,400,000,000 for interest on mortgage debt, taxes, interest on short-term debt owed to banks and Government agencies, and for rent paid to owners not living on farms. Added to these items is the transportation bill, the cost of fertilizer and expenditures for gasoline and electricity to supply power on the farm. Since practically all these services and goods are procured outside the farm the drain on the farmers' gross cash income for these items is tremendous.

A credit policy serving agriculture must take into account all policies aimed at increasing the share of the national income the farmer produces which is retained in his hands. An interest policy should be designed to minimize this burden on the farmer and to facilitate his progress toward ownership, while enabling him to supply his productive needs in such a way as to obtain a higher standard of life and greater security for himself and his family.

In the immediate situation the need for debt adjustment must be frankly recognized. This need was apparent in 1933 but the responsibility for assuming it has not been defined. Serious problems are confronted in dealing with this problem but they should not be insurmountable. We have worked out methods for readjusting and composing the railroad debt. The funded obligations of a score of class I railroads have been reduced by more than half without too much difficulty. It should not be impossible to work out safeguards to accomplish a reasonable adjustment in the long-term debt of agriculture and maintain adequate safeguards against abuse.

Policies with regard to the extension of credit in agriculture by all types of lenders have been undergoing marked changes in recent years. The idea of maximum security and profitable lending based on minimum appraisals has been giving ground to a broader policy which takes into account the welfare of the borrower and the protection of the soil resources. A public credit agency should have as its objective aiding borrowers to increase their incomes and as a result improve their standard of living.

Credit is quite generally used, particularly in business and industry, to get the borrower out of difficulty through measures under which the lender assumes some of the responsibility for management in directing the borrower's enterprise. This has long been a recognized practice in industrial credit and many private lenders are making modified use of similar policies in their loans to agri-

culture. This development is a step forward in lending to agriculture, and while it has its limitations its potentialities for reducing risks generally in farm mortgage lending need to be carefully explored.

A credit agency which seeks to serve all the credit needs of the farmer and which gives consideration to the total welfare of agriculture must keep its concept of short- and long-term credit fairly elastic and must keep broad the purposes for which it will make loans.

Generally speaking it might be said that agriculture requires credit of varying terms according to the purpose for which the funds are used. While classification according to term is largely arbitrary, for purposes of discussion it is useful to refer to credit up to one year as short term, two and three years as intermediate and over three years as long-term credit.

Agriculture's need for short-term credit in relatively small amounts is ever present and the term of loans needs to be suited to the purpose for which the loan proceeds are used and to the production cycle of a given crop. This field has been too little developed in agriculture and the cost of short-term credit in many sections of the country is high. Agriculture also needs long-term credit on a mortgage basis continuously available at the lowest possible interest rate and with repayments amortized on a flexible basis which takes into account the natural risks inherent in the agricultural industry and largely peculiar to it.

The intermediate credit field needs to be developed far more extensively than it has been so far. Production credit associations have begun to develop this field somewhat but the present and future needs of agriculture indicate that the requirements of the farmer for this type of credit will grow in importance.

The purposes in agriculture which this intermediate type of credit would serve are many and varied. The need for such land improvements as clearing, terracing, drainage and liming has become more apparent in recent years, not only to farmers but to the public generally and to all agencies, private as well as public, that are seeking to serve agriculture. The purchase of farm machinery in an era of machinery calls for a large use of credit, and expensive installment buying is an all too common means of providing this necessity. The provision of work and breeding stock, milk cows, orchards and small fruit trees and the improvement of farm buildings and fencing likewise fall into this intermediate classification.

These needs farmers want to meet out of income over periods of two or three years, but existing credit facilities for meeting them are not always readily available at rates that would encourage fulfilling them. One of the weaknesses of the credit system in the past has been easy credit during favorable years and credit stringency during years of lower income. Our credit system should be organized to become more dependable as a source of credit.

The lack of capital readily available to meet the real needs of agriculture, regardless of the phase of the price cycle, is a limiting factor in the full development of agriculture. Lack of capital limits those sections of the country where new systems of farming require more livestock, new machinery, land clearing or land improvement. It also hinders the purchase of additional acres where these are needed to make a complete farm unit. Problems of this kind are particularly acute in our present situation. Shifts in demand and a declining export market are calling for major adjustments in agriculture in some areas. These adjustments could be facilitated by a wise use of credit.

The difficulties that afflict our one-crop farmers and the need for improvement in the standard of family living on the majority of our farms are also problems that call for a broader policy on the part of public lending agencies seeking to serve and to build a balanced agricultural industry. Failure to supply properly the short and intermediate credit needs in agriculture only hampers the development of the whole farm plant and makes mortgage security less stable.

Toward what ends, then, should the policies of the FCA be directed? Broadly speaking they should seek to serve the total welfare of agriculture.

In serving these needs it will be necessary to work out a broader concept of security which would consider the productive potentialities of the agricultural enterprise. The earning power of the farm and not its possibilities as an investment proposition; the farm as a source of livelihood for the farm family and not its potentialities as speculative venture, should be the basis of appraisal in making loans. Since all loans must be repaid from income this is a sound basis for security.

We need to use credit to build a better balanced, a more diversified and a more stable agriculture. Cooperative county land use planning is bringing to bear on the problems of agriculture the best

thinking of operating farmers and technicians through local committees. The recommendations of these committees represent the considered judgment of farmers working with agricultural technicians to meet local needs in the sound development of agriculture. Through county planning the family farm is strengthened.

Here is a new development in agriculture and it is creating new demands for credit which existing agencies are not prepared to deal with adequately. Where it is needed and can be effectively used credit should be available to agriculture to carry out the plans for conservation and adjustment that are coming out of this cooperative endeavor. Who is going to meet those needs and how they will be met are questions we must face. Because of the slow turn-over of farm capital, loans of this kind are unattractive to most private lenders except in the very best times. Some use of public credit for these purposes seems inescapable if these needs are to be met.

Credit is only one tool for improving the income of farmers and as such it has definite limitations. But the function of credit in accomplishing that end for agriculture has been too little developed in the past. Within those limitations, which we all know to exist in the use of credit as a tool for improving farm income, it is the purpose of public credit to develop this function of lending to agriculture. This does not mean that public credit will be recklessly used or unsound lending fostered. Quite the opposite should be the case.

When improved income is the object of lending, the contribution toward that end which credit can make, considering both a reasonable cost of the credit and the purpose for which the loan proceeds will be used, becomes a factor of major significance in making the loan. It will be necessary to pay attention not only to the immediate but also to the long-term potentialities of such credit extension toward improving the earning capacity of the farm enterprise. By so doing and by the wise use of credit to build permanently the earning capacity of the individual farm unit, and of agriculture as a whole, lending will be kept closer to earnings and its effect upon them. Sounder loans and greater security for the lender as well as the borrower should be the result of such a policy.

With interest rates low enough and a credit agency designed to serve agriculture by making available to it the benefits of our national policy of low interest rates, a public works program in agriculture that is much needed could be carried out. Such a pro-

gram should include the planting of trees, terracing and land practices in order to prevent large-scale gullying and erosion.

When the national defense program begins to taper off and additional surplus labor is released from the defense industries some program will have to be available to take up the slack. Men now being called into national defense industries and into the defense force will have to be provided with work opportunities. Such a program would perform the dual purpose of accomplishing a task that needs to be done in agriculture and provide work at the same time.

A sound program for the constructive use of public credit in building the agricultural industry is essential if agriculture is to achieve parity with industry. Agriculture is no less vital to our national defense and to our national well-being than is industry and by the same token our policies in the development of the agriculture of the future must be dynamic.

We need such a policy if we are to develop agriculture to the fullest potentialities as a family industry. We can build a strong national life only on the foundation of a strong agriculture. In accomplishing that end a soundly administered public policy in farm credit can play an important part.

THE FUNCTION OF CREDIT IN MODERN AGRICULTURE

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Little has been written about the mechanisms of our economy as they relate to their functions in modern society. We have been content with the broad generalizations of the classical economists modified by the equally broad generalizations of moderns. Economists have adjusted themselves to the transition from the free enterprise of the self-regulating mechanism of Adam Smith to the controls implicit in the imperfect competition of the modern world without examining in detail the social effects of these changes.

Agricultural credit, as we know it in America, is a device which developed out of the free enterprise, the free and unrestricted right to own and use land, the right to buy and sell land, and the right to bequeath it without hindrance. This credit mechanism grew up as a function of the agricultural economy of the nineteenth century.

Now we argue about credit as an instrument for forwarding social justice, for regulating land use, for re-distributing wealth, for controlling settlement, for solving land tenure problems, for controlling speculation in land, and for social purposes too numerous to list.

A search of the literature reveals surprisingly little regarding the function of agricultural credit except those functions which were generally recognized as relating specifically to the individual. The literature is full of references to credit institutions. Numerous studies have been made in the field of appraisal, of foreclosure, and of loan experience.

Agricultural credit as we knew it before 1933 was concerned with the highly individualistic problems of financing specific agricultural undertakings; such as, credit for the purchase of land, for improvements, for expansion, for refinancing old debts. Each case was decided on its merits. From the creditor's point of view the only questions asked were, "Is it a good loan?," "Is the collateral adequate?," "Is the moral risk good?" The borrower gave consideration only to such questions as, "Can I repay the loan out of earnings?," "Will the loan increase my net earning power?," "Are the terms satisfactory?," "Is the creditor fair?"

On the face this appeared as a completely unplanned, unregu-

lated procedure. Many of us have forgotten or denied the validity of the simple concepts implicit in the competitive economy in which this mechanism developed. From the standpoint of society this was not an unplanned procedure. There was a very great deal of planning involved. Each loan was planned in detail to meet the requirements of the particular situation. The loan, if it were a good one, well-planned and adapted to the purposes, resulted in "economizing" both the resources of the borrower and those of the lender. From the over-all view of society the loan was not unplanned since the size of the loan, the rate of interest, and the terms of repayment were all the result of competitive forces.

While agriculture is still basically competitive, many of us express surprise when anything approaching equilibrium actually results from the free play of competitive forces. Credit through the process of competition was highly selective. Since sons do not necessarily inherit the managerial ability and inclinations of their fathers, some process for the redistribution of land is needed each generation. Credit served this purpose subject to certain limitations. Through the use of credit the resources in agriculture pass to those who have demonstrated their ability to use them. There is a kind of rule of thumb by which farmers have been guided in land purchase. It has generally been considered safe for a farmer to buy a farm when through his own earning power and thrift he has saved enough to make a one-third down payment on a farm. The loan experience of creditors will show that few farmers in this class have lost their farms or become chronic delinquents, the exception, of course, being those farmers who were seriously extended during the panics. When this process works smoothly, there probably is no better method for society to get the best farms into the hands of the best farmers and thereby insure the greatest economy in the use of resources. When assets acquired through inheritance, marriage or speculation have served as a basis for credit, the social objectives of competitive credit may not have been realized. The bankers' practice in the past of lending on the balance sheet has contributed to this social loss. When it is a matter of indifference to a creditor whether or not he forecloses, he may lend on the balance sheet with confidence. When foreclosures normally result in loss to the creditor, the practice of lending on earning power, thrift, and morals is made profitable. The interests of society are best served when a loan is made on this basis. Even if the loan is properly made the

farm may pass, while still encumbered, into the hands of poorly qualified owners through sale or inheritance.

This mechanism breaks down, in part, in periods when farmers' earning power is so low that only a very few are able to save enough to purchase farms. In such a period there is a drop in land values and an increase in the number of farms changing ownership through inheritance, foreclosure and through sale to non-farmers. In such a period there is a rise in farm tenancy. In good times, farmers compete with each other in the purchase of land since large numbers are able to save. The result of this procedure is that farmers generally buy their farms at high prices. In hard times they may become radical and demand social legislation not warranted in the long run.

In times of panic some machinery for taking up the slack seems desirable for the reason that many of the most efficient farmers suffer along with the inefficient. There is a social loss when a good farmer loses his farm during a panic because of forces over which he has no control. The emergency machinery developed by the Farm Credit Administration in 1933 served this purpose. Once the emergency is over the free play of competitive forces in an open market should be resumed since only in this way can the selective processes of farm credit be permitted to operate. The continuation of emergency credit machinery in normal times may actually have the effect of facilitating the transfer of farm assets into the hands of less efficient farmers since they are most likely to assume large risks.

Some modification of the laws of inheritance and sale may be warranted in the light of past experience. Adam Smith in his chapter on the discouragement of agriculture in the ancient State of Europe maintains that a person who can acquire no property can have no interest, but to eat as much and work as little as possible. He saw the best prospect for soil improvement in the personal interest of the owner-farmer and in the tenant-farmer, provided the tenant had security of tenure as certain as that of the proprietor. While he emphasized the importance of individual interest he did not neglect the fact that men live in communities and more particularly as families. He, therefore, recognized the necessity of regulation of the legal status of land. He asserted the right of the state to regulate inheritance, the rights of primogeniture and of entails.

During the nineteenth century the purely legal rights in property

in land gradually became subject to substantially the same legal treatment as moveable property. The right to freely dispose of property in land became incorporated in the doctrine that grew up around the free enterprises of the period. Von Dietz in a paper presented before the Fifth International Conference of Agricultural Economists in 1938, called attention to recent world-wide tendencies in land policy. "It will be seen that the new tendencies encroaching upon the rights of land owners are aiming at two objects which are essentially different from one another; (1) to fit into the liberal order, measures of safety tending to intensify the attachment to the soil, to stop the causes of unproductive indebtedness, and the prevention of injurious exploitation of the land, all of these being intended for the creation of a better social and economic foundation for permanent activity of private agriculture; (2) to get the use of land controlled by the community and thus to supplement or even replace private initiative."¹

After showing the basic conflict of these two ideas, Von Dietz concludes, "countries which aim at agricultural progress will best attain their objective by creating as favorable conditions as possible for the encouragement of private initiative and competition. Important, too, is the security of the legal status. But a security which goes so far that his land can only be taken from the farmer in the case of clearly culpable neglect of his duties compels renunciation of a part of the economically favorable effects which are attained by a generous utilization of credit. A limitation of the freedom to contract . . . can easily occasion a tendency to other legal forms and methods of cultivation which do not offer the same prospect of agricultural progress."²

Von Dietz, writing in the midst of the revolution in modern Germany, arrives at conclusions in harmony with those of Adam Smith.

The conflict in objectives pointed out by Von Dietz are apparent in the agricultural programs in the United States. We have no clearly defined national land policy in the United States. The objectives of most of our action programs have never been set out. So far as one can guess, the objectives appear to be in conflict much of the time. Recently the FCA was placed in the Department of

¹ C. von Dietz, Land tenure and the social control of land use, Proc. International Conference Agr. Econ., 1938, p. 119.

² *Ibid.*, p. 138.

Agriculture. The objective presumably is coordination. If the Government is to continue to subsidize agricultural credit, few will deny that the lending policies should and will be controlled, by the Federal government and that the credit activities should be coordinated with those of other action agencies.

The writer contends that the policies of all the action agencies should be coordinated under a unified land policy. But we have no unified land policy. Each action agency has its own. Frequently there appear to be several conflicting policies within a single action agency. If the farm credit policies were coordinated with those of the AAA, then presumably a stiff credit policy should be expected since this should contribute to production control. In principal, the FCA should act (from the standpoint of national policy) to facilitate contraction at a time when contraction seemed desirable in the same manner as the Federal Reserve System is supposed to function. Most proponents of closer coordination between the FCA and the AAA envisage easy credit as permanent policy.

Agricultural credit is only a mechanism. It is a means and not an end in itself. Reform of credit can only be carried out intelligently if the ends of agricultural policy are clearly set out. Agricultural credit as we have known it has been a mechanism which has facilitated the transfer of land and the development of resources in a society, a basic policy of which was freedom of disposition by the farmer.

Once we depart from the system of competitive business credit and develop a system of subsidized credit monopolized by the Government, an entirely new mechanism must be developed predicated on a totally different land policy which implies a degree of control over agricultural enterprises not previously contemplated. When credit is extended beyond the point or in situations where previous loan experience indicates that the earnings on the loan will not be sufficient to pay the bond interest, necessary administrative expense and risk insurance, an entirely new situation is created in the field of farm credit. It is inevitable that subsidies which may be used either to insure against unusual risks or to pay for managerial service in connection with the operation of mortgaged farms, will be used mostly for management. It is inevitable that subsidized loaning by the Government will lead shortly to increased participation by the Government in the management of mortgaged farms.

Subsidized credit may take the form of (1) reduction in the mortgage rate below the competitive rate for loans that have been made on a business basis; that is, loans for which the security offered is such that they would have been made in a free market, (2) loans, the principal amount of which is in excess of the amount that would have been loaned in a free market. Experience with subsidized credit throughout the world indicates that the program invariably takes the latter course since the program is designed to carry the credit service to the entire agricultural community, to persons for whom credit was not available on a business basis because they have inadequate security to offer, have low earning capacity, or for whom the moral risk is high. This is bound to be a very costly procedure since all the data available indicate that the service cost and principal loss on such loans is excessive.

Probably the most important cost of making excessive loans is the service cost. This is certainly true for small loans. While it is known that the cost of servicing these loans is high, very few credit institutions have had the courage to publish these costs.

A brief experience which the writer had with seed loans indicated that while a large percentage of the principal amount was repaid ultimately, the service cost was likely to be as much or more than the entire principal amount. The FSA has never to my knowledge published regional service cost data. Based on very rough estimates of probable field costs, it seems likely that the field service cost for these loans may easily amount to more than the pawnbroker's rate.

The Tippecanoe County National Farm Loan Association services 833 Land Bank and Commissioner's loans. The secretary, Mr. R. S. Fouts, has furnished the following estimates which are believed to be fairly representative of the situation in well managed associations in the Fourth Federal Land Bank District.

"About 80 percent of the borrowers will pay promptly; that is, before the tenth of the month when penalty interest starts to accrue. Perhaps another 10 percent will pay within 30 days. At least half of the final 10 percent will pay within 90 days. The serious trouble is with the last five percent. These men require much attention. I believe it is safe to say that fully half of our collection time is spent on this final five percent."

The association depends on the traditional collection procedure of placing the responsibility on the borrower. It does not offer

management service to its borrowers. Any policy which resulted in easier credits could double or treble collection costs in this association or increase losses if funds for collection service were not available.

The land banks have given some consideration to closer supervision of these delinquent loans. Every realistic study of such service costs must lead to the conclusion that the interest returns on the loans are entirely inadequate to support such service. The extension of management service would place an unnecessary burden on well-managed associations and on well-managed farms which would be out of all proportion to the benefits received by the small minority.

If loans are made in excess of those that would have been made on a business basis, the creditor institution has no option but to shoulder the necessary management costs however large they may be. If the other alternative of a stiff collection policy is followed, then the original policy of lending in excess of the competitive standard will prove to have been unsound since there is no point in lending money to finance an undertaking knowing at the time the loan is made that the chances favor foreclosure. It should be pointed out here that there is a difference between accepting a temporary management function because loans made on a business basis have broken down, and accepting a permanent management function through following a policy of making loans when it is known in advance that they will break down.

We are, therefore, forced to the conclusion that an easy credit policy made possible by government subsidy leads inescapably to the supervision of the management of mortgaged farms. Creditors, private and public alike, have never shown any special aptitude in management. I believe it is inevitable that the creditor who has a managerial responsibility will be a poor manager in the long run even if the manager be a field man for a Government Bureau. The writer has cooperated on occasions with creditors who were desirous of assisting in the management of mortgaged farms. The invariable experience has been that after a short experience the creditor seeks to avoid business risks. He avoids responsibility and sooner or later his instinct for collection gets the upper hand and he either strips the enterprise of working capital or interferes with its operation by vetoing good business risks.

A national program of subsidized credit should have the effect in

the long run of making universal, and perpetual, a situation comparable to that now being experienced in the Great Plains. A good farmer in a dry year no doubt presents a simpler problem than a poor farmer in a normal year, since one can depend on rain sooner or later.

Before a decision is reached to further subsidize agricultural credit, we should study the problem of field service and management costs. Data regarding the cost of servicing delinquent loans are available in the various government and private credit agencies. The findings should be published. The writer is willing to forecast that the findings will astonish even those who work at first hand with this problem.

Credit agencies have had much experience with the supervision of delinquent loans and with the management of foreclosed property. A few agencies, particularly the FSA, have had some experience in the actual cooperative management of the farm under the joint supervision of the farmer and the field man (or as often happens the cooperative management by the tenant, the landlord, and the field man). This is the area in which we lack experience and in which costs are probably not available. Certainly a much higher field service cost than anything even contemplated by the FSA will be necessary if commercial farms are to be operated under this kind of management. The FSA so far has not faced this problem since the program is still in the lending stage. A college senior without experience in management or finance makes a poor team-mate for a farmer who has proved his inability to operate his own farm.

Since further subsidization leads us inevitably to a further extension of loan supervision, such studies should furnish a basis for forming a national policy. Legislation requiring that all government loan agencies be required to publish detailed costs including administrative and field service costs on a regional basis would be useful. No doubt some of the work of the FSA can be justified on a basis of education and rehabilitation. In any event let us find out what it costs. Possibly there are cheaper ways of accomplishing the same purpose. The line separating rehabilitation and business credit should be drawn at the point at which the individual farm family becomes economically independent. In the latter group should be included young men who are efficient enough so that given time they will establish a sound basis for credit on a business basis. If the FSA continues to extend its operations into the area of business

credit by accepting as clients young men who have not yet had an opportunity to establish themselves, it will ultimately supplant competitive credit by the simple process of harvesting the customers before they mature.

The scope of this problem is suggested in figure 1 in which is shown for comparison the cumulative frequency curves for rate earned on the investment for 908 accounting cooperators and 295

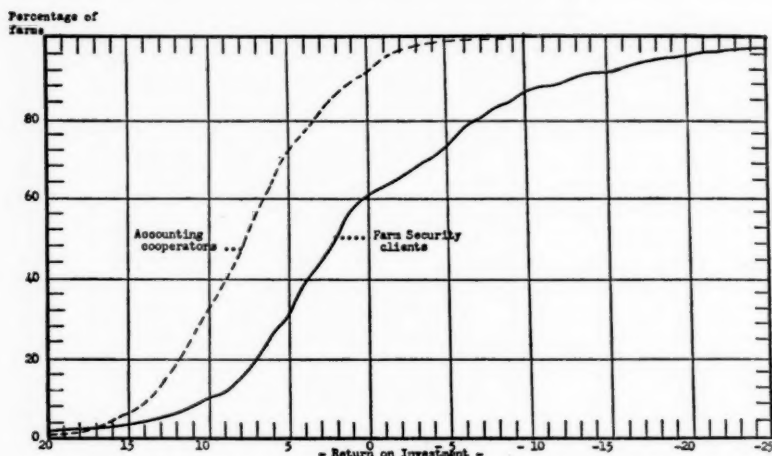


FIG. 1. RATE EARNED ON INVESTMENT (CUMULATIVE FREQUENCY CURVES SHOWING RATE EARNED FOR 908 FARM ACCOUNTING COOPERATORS AND FOR 295 FARM SECURITY CLIENTS IN INDIANA IN 1939).

FSA clients in Indiana in 1939. The curves start out together. About four per cent in each group earned more than 16 per cent on their total capital. From this point on the curves diverge. Thirty per cent of the FSA clients and 72 per cent of the cooperators made five per cent or more on their total capital. Only sixty per cent of the FSA clients had a positive return on capital while 92 per cent of the voluntary cooperators earned something on capital. The largest loss reported by a cooperator was -15 per cent. The largest loss reported by a FSA client was -125 per cent. Twelve per cent of the FSA clients had losses of 10 per cent or more on capital. The results shown here are of course not conclusive. They are used only to show the nature of the problem and to suggest the type of research that is necessary. Obviously, the two curves represent the two extreme situations. Should we serve both these groups with

the same credit mechanism? Can the FSA group ever be made to pay its way even with subsidized credit? How much and what type of managerial ability should the creditor employ with each group? How much will such service cost? What will socialized credit do to the relative position of the two groups? These are some of the questions we need to answer before we go any further in reforming our credit structure.

In a credit study in a typical Indiana township the local banker who had 75 per cent of the short-term credit business in the township established a credit rating for every tenant, owner, and landlord in the township. He had a lifetime experience with these people. Ten per cent of the owners and 10 per cent of the tenants had no basis for credit. Thirty-three per cent of the tenants and 20 per cent of the owners could establish a credit line of less than \$250. Thirty-two per cent of the owners had a credit line of \$1000 or more and six per cent had a credit line of \$5000 or more.

The reasons for the limitation of the credit line in order of importance were lack of assets, poor management, assets not liquid, already overloaned, previous loan experience bad, and poor moral risk.

This study illustrates the wide range in credit available to individuals on a business basis. It also illustrates the type of information needed before much progress can be made in solving the problem of financing farmers with small assets and low earning power who are not thrifty.

Once all the costs are determined the writer would like to draw a line separating those loans in which the interest charged is sufficient to cover pure interest, administrative costs, and risk insurance from those where the interest charge is insufficient for this purpose. For the former he would like to reserve the name "agricultural credit"; for the latter he would like to coin a new term which more properly describes the true situation. The FSA differentiates between a loan and a grant. Many loans when they break down become grants. These terms refer only to the principal. The service cost may ultimately be a much more important factor than the principal. On this basis many loans which may never break down would need to be classified as grants. This dividing line roughly indicates the point at which the creditor ceases to be a creditor in the accepted sense of the word and becomes an entrepreneur. The creditor may avoid this responsibility for a while by

carrying loans delinquent, by writing off losses or by continued subsidy of operations, but sooner or later the function of the entrepreneur must be accepted if the earnings on loans are not sufficient to cover pure interest, administrative expense, and risk insurance.

DISCUSSION BY L. J. NORTON

University of Illinois

The basic philosophy underlying Doctor Black's paper is that the governmental institutions extending credit to agriculture should proceed in ways that emphasize social ends rather than private benefits. In connection with mortgage credit he assumes that the encouragement of the family owned and operated farm is a primary objective. I should like to examine this point briefly. Certainly there is no obligation on the part of the government to furnish capital to nonfarming investors in farm lands, who may compete with operating farmers for available land. But when it is argued that the Federal land banks and affiliated institutions are responsible for not preventing the moderate increase in the proportion of tenant-operated lands in the last two decades, it is difficult for me to agree.

A high proportion of owner-operated farms is undoubtedly desirable from many points of view, but is not the emphasis on this form of land tenure as the one ideal system a part of "folk lore" of agriculture concerning which we hear so much at these meetings? How well does this tenure pattern square with the economic realities that prevail in large sections of the country? That the idealists who worked for the original organization of the farm loan system emphasized this pattern is no evidence as to its survival value.

In the last two decades farm prices and incomes have been very unstable. Declining prices and land values increased the risks incident to land ownership; many owners lost their lands, and a feeling of uncertainty regarding land ownership was created in the minds of many people. Moreover, low incomes during much of this period and losses from bank failures reduced the savings of many operators. Land mortgage credit institutions were not directly responsible for these income conditions, and to only a small extent indirectly, but price instability undoubtedly was the primary cause of increase in tenant-operated land.

In certain areas of high priced lands another factor is currently operating: investors are apparently capitalizing income from land at lower rates than are local farm operators and are bidding more for land than local farmers are willing to pay. There is no law against this; there is nothing that a Federal land bank can do about it; yet it keeps a particular farm under tenant operation.

Let us consider this question from the operator's standpoint. To operate land now requires considerable capital; mechanization and other trends in farm operation have increased capital requirements. Moreover, mechanization has tended to make larger acreages desirable. Providing this capital together with the maintenance of the higher level of living incident to an

age of automobiles, radios, and electricity, creates the first demands on the savings and current income of farm operators. Ownership of the land needed for a business of adequate size creates hazards that are beyond the capacity of many able operators to absorb.

These are some of the realities which must be recognized in a realistic analysis of the meaning of the trend towards tenancy as a means of acquiring the use of the land needed to operate a farm business.

But there are still many land owning and operating families in all sections of the country. To provide these families, and their number is constantly being recruited from thrifty and successful tenants, with the credit needed to transfer farms from one generation to the next and for other legitimate purposes is the primary concern of the Federal land banks. What sort of credit system do these people want? Doctor Black says that the farm loan system has given to them lower interest rates, longer term loans, amortization, and that these improvements are "significant but not vital." Thousands of these families all over the United States would rate the services of the land banks as personally vital to them.

The land banks may continue as semi-cooperative institutions with diminishing public assistance, or as governmental institutions. Eliminating the present capital stock requirements for borrowers from the land banks would be a move toward making them governmental institutions. If the present national farm loan associations serve areas that are too small and include too little diversification to carry the degree of risk which they now must carry, it would be relatively easy to provide for division of the risk between the banks and the association. This would shift more of the risk to the banks which cover wider and more diversified conditions. The liability of borrowers incident to ownership of association stock was halved in 1933; it could be reduced again. The retention of the stock, however, will maintain some degree of borrower participation in providing the capital which the banks need to maintain financial stability and independence. Cooperation should not be too painless; genuine cooperation involves sharing of burdens in order to gain benefits.

However, those of us who favor retaining a basic cooperative pattern for the land bank system should recognize that insistence on low subsidized interest rates may finally put over a governmental system. If the proponents of independence for the system bite too freely at "the bait" of low subsidized interest rates, they may expect eventually to be "hooked" by a government system. One factor which those who are in sufficiently strong financial position to use land bank credit need to recognize is that governmental control of credit may mean controls in other directions.

As I have said elsewhere, very likely we will have two mortgage credit systems, excluding the strictly private sources of credit. One of these will be semi-cooperative and will be based on the Federal land banks and national farm loan associations; the other will be strictly public, owned by the government. This is a huge country with great variations in conditions and risks. The first step in creating the public system was the authorization of the commissioner loan in 1933; the second was when the interest rate on these commissioner loans was reduced to the land bank rate. Parallel

systems, public and semi-cooperative, may be noted in the pre-World War I pattern of mortgage credit institutions abroad. Although it may be an economy to combine the public system with the public features of the cooperative system as is now the case, those who are interested in the latter should be zealous to maintain the conditions which insure the basic freedom of the cooperative institutions.

Turning to another phase of Doctor Black's paper, i.e. the failure to develop adequate credit systems for low income groups, it may be well to ask the question: Granting without question the importance of the problems of these people both to themselves and to the country, how far can these problems be solved by lending them money? The role of credit in agriculture is to aid farmers to acquire resources which are needed to give them a business of adequate size. Unfortunately, many of these low income people live in areas where opportunities to acquire additional resources are limited. Moreover, credit involves repayment and these people typically handle but little cash. Obviously, the major effort to improve the material well-being of low income farmers must be in the direction of building up their productive capacity, but the effort should not get them too far into debt. It is probably a mistake to emphasize loans as the chief means of helping these people.

Is the mortgage system responsible for soil erosion and can mortgage credit institutions help to check it? Failure to protect soils is chiefly caused by two factors: (1) ignorance of the seriousness of the problem or how to solve it; (2) the high premium on current incomes over future incomes. Money is wanted in the near future not merely to pay interest on debts, but also for current operations and living expenses. Studies which we have made at Illinois suggest that the size of the debt burden is not the primary factor affecting the intensity of the cropping systems. But they do suggest that when a loan begins to go delinquent, destructive cropping systems are given greater emphasis. It is at this point, i.e. when loans begin to go delinquent, that credit agencies should give careful attention to the cropping systems and management systems of their borrowers. Money spent in intelligent supervision at this point may save losses later on.

Regarding short-term agencies, both the governmentally-sponsored production credit associations and the banks, two points need particular attention in my opinion. The first of these is in connection with financing needed changes in farming systems. At such times credit agencies should not take leadership in recommending changes because they are not experts in that field, but they should not allow their natural conservatism to prevent the adjustments in loan policies which will assist farmers in financing desirable adjustments. The second problem is in connection with the financing of beginning or young farmers. This subject cannot be discussed in adequate detail here. But a careful classification of the potential prospects in this field will reveal opportunities to any agency to make satisfactory loans of this type. Financing may play a significant part in determining who the farmers of the future will be. This choice is probably the most important public problem of any farming community. Credit

agencies can either do much good or immense harm in their choice of the persons whom they back.

In conclusion it seems to me that this test should be applied to our public and semi-cooperative credit agencies: Are they supplying on a self-sustaining basis (1) the independent owner-operators with satisfactory mortgage credit and (2) all farmers with the types of short and intermediate credit needed to make profitable use of the human, land, and water resources available in various farming communities? To apply standards that go beyond these is to ask credit institutions to do things for which they were not created and are not designed to do. The Farm Security Administration has objectives that go beyond these standards, and therefore the same tests cannot be applied to its operations. Of its activities the test is: Is it making low income farmers genuinely more productive in ways which are not too wasteful of public funds?

DISCUSSION BY W. G. MURRAY

Iowa State College

Three points in Dr. Young's paper, in my estimation, are either not sufficiently clear or are likely to be misinterpreted: (1) there appears to be an unwarranted implication that farm credit subsidy is a recent development since 1933; (2) The paper suggests that all government credit activities are grouped together as if equally subsidized, whereas, a definite distinction should be made between the Federal land banks and production credit systems on the one hand, and seed loan and rehabilitations loan systems on the other hand; (3) it would seem possible to answer Dr. Young's plea for additional cost data on low-income credit by using cost figures supplied by seed loan experience.

With other sections of Dr. Young's paper I heartily agree, especially with his emphasis on the cost of management service in connection with credit to low-income farmers. His suggestions for a new name for credit to low income farmers is an excellent one. This type of government loan might well be labeled welfare or rehabilitation credit to distinguish it from other credit used by farmers. Since there is probably general agreement on this subject as well as others in Dr. Young's paper, let us consider the three points previously mentioned.

The implication that credit before 1933 was not subsidized comes from the following quotation, among others, "Agricultural credit as we knew it before 1933 was concerned with the highly individualistic problems of financing specific agricultural undertakings—." But government subsidized credit to settlers on irrigation projects started in 1902. Although only a small edition of the present Tenant-Purchase loan, this early credit plan actually had many similarities with the present program; in fact, it is likely to involve more subsidy per farm in the long run than the Tenant-Purchase loan. The Federal land bank system with its tax-exempt bonds included a government subsidy. Seed loans, first made in 1918, made in various years until 1929, and made every year since 1929, have always

been subsidized credit. The state credit systems of South Dakota, North Dakota and Minnesota were all created, active and either insolvent or inactive before 1933. The Farm Board loans to cooperatives and stabilization loans also included pre-1933 government credit subsidies. Although subsidies have been expanded since 1933, they were numerous and important prior to that time.

The second point, placing all F.C.A. loan activities in the same category, is suggested by a number of statements in Dr. Young's paper. The following statement is pertinent "Most proponents of closer coordination between the Farm Credit Administration and the Agricultural Adjustment Administration envisage easy credit as permanent policy." The question is whether this applies only to seed loans and Land Bank Commissioner loans, which are strictly government loans or also applies to loans by Federal land banks, production credit association, and banks for cooperatives which are made by quasi-cooperative associations and only semi-governmental. An easy money policy and coordination with the AAA may well apply to seed loans and Land Bank Commissioner loans but not to loans by quasi-cooperative conservative institutions. There is entirely too much grouping of all credit offered by the F.C.A. into one classification. The idea that the Farm Credit Administration offers one type of credit and the Farm Security Administration another type is erroneous. Actually there is a much wider gap between P.C.A. loans and seed loans, both inside the F.C.A., than there is between the seed loans in the F.C.A., and the rehabilitation loans in the F.S.A. Consequently credit policy with respect to low income farmers affects the F.C.A. seed loans and the F.S.A. rehabilitation loans but it does not necessarily affect P.C.A. loans. The tendency to make generalizations about Farm Credit Administration credit policy is confusing to say the least. If and when the different types of credit are segregated into homogenous groups, it will then be possible to speak clearly regarding the credit policy for each of the administrative groups.

Dr. Young speaks of the need for data on the cost of making loans to low income farmers. The inference is that there is practically no data available. This may be true of rehabilitation loans but it is certainly not for seed loans. Norman J. Wall in his bulletin on seed loan financing, published in 1936, gives a detailed account of seed loan costs including administrative costs and losses. The annual reports of the F.C.A. have brought some of these cost figures up-to-date. Wall makes the following statement in his bulletin:

"It is probable, however, that over the entire period expenditures ranging from 7 to 8 per cent of the principal amount have been necessary to cover administrative costs."

Administrative costs on seed loans have been small, however, compared to losses on principal. The F.C.A. annual report for 1939 states that between 1918 and 1939, a total of 376 million dollars have been loaned, and only 260 million have been repaid; 69 per cent only has been repaid.

The cost of supervising rehabilitation loans is indeed likely to be greater

than for seed loans. It is possible, however, that the added supervision on rehabilitation loans may cut down losses.

This question of supervised welfare credit to farmers is one we are likely to have before us for some time to come. Dr. Young has shown good judgment in turning the spot light on the costs that are likely to be involved in advancing this type of subsidized credit. Before closing I want to commend Dr. Young also for placing his paper in the hands of the reviewer more than two weeks before this meeting.

DISCUSSION BY PAUL BESTOR

Prudential Insurance Company

Professor Young's analysis as presented in his paper "The Function of Credit in Modern Agriculture" is an excellent one. I concur in it almost altogether both as to the analysis and the implied conclusions, or at least my interpretation of his implied conclusions. He has set out clearly and concisely developments in National farm credit, particularly during the last few years and has pointed out some of the major problems which now confront us, or which will confront us at an early date as a result of these changes. He has called our attention to the fact that up until 1933 the rules governing farm credit were comparatively simple. Each case was decided on its own merits. The system was in fact quite analogous to credit extended in any other line of business. By and large it worked very well as long as there were no large dislocations in the purchasing price of farm commodities, or in the amount of money available for lending.

From that system of credit it is a long cry to the present situation where farm credit is complicated with all sorts of problems and is used, as Prof. Young points out, as a means of attaining social and other objectives. The monkey wrenches which were thrown into the credit machinery of an earlier day by the "depression" resulted in the setting up of the F.C.A. which did such a fine job of refinancing, particularly during the period 1933, 1934, and 1935. Prof. Young now calls for a return to the free play of competitive forces in an open market. He agrees with Von Deitz in his conclusion: "Countries which aim at agricultural progress will best obtain their objectives by creating as favorable conditions as possible for the encouragement of private initiative and competition." There are many who are not in accord with Von Deitz and Professor Young in this conclusion, otherwise there would not be a continuance of the present tendency to make private lending difficult.

There was a time, and it was not so long ago, when a mortgage on a good farm was regarded as a prime investment everywhere. Farmers by the hundreds of thousands for many years qualified for credit, borrowed on their farms, and later paid off their loans over a period of time. Some of them, of course, did not succeed in paying off the loans but a great many did. After the loans were paid off the farms were often sold in the market and the new borrower financed his purchase in the same way. That this system was in the main satisfactory prior to the last depression, is evidenced by the fact that more than half of the farms in our country today

are free from debt. What other industry or business can match this record? It is safe to assume that most of these farms were purchased and paid for under the old system. Professor Young says that it was generally considered safe for a farmer to buy a farm if he could put down one-third of the purchase price. This was, of course, assuming no period of serious inflation at the time of purchase and no period of serious deflation to interfere until the farmer had reduced his loan to a safer margin. As an illustration, it would not be expected that an Illinois farmer who paid one-third down during the 1920's at an inflated price of say \$400 per acre, could pay for the farm from the farm deflated commodity prices which followed.

In concurring with Professor Young in his general statement as to the soundness of our Farm Credit procedure prior to 1933 under conditions existing at that time, and also concurring in the thought that there was definite need for the emergency credit measures which were adopted during the depression, I would not lose sight of the fact that the loss of our foreign markets and changes in the domestic consumption of some of our farm commodities have to a tremendous extent interfered with a return to the days which preceded the World War. On the other hand, while these problems and others have tended to make the farmer's problem of meeting his debt more difficult, there have been a number of favorable factors which have offset very largely the unfavorable ones. I refer to the adoption of the various AAA and affiliated farm programs for crop control, crop insurance, crop loans, and soil conservation. They have provided a general stability to the situation that never before existed. These stabilizing factors will without any doubt be continued.

It would seem to me that help along these lines is as far as the Government should go. Why not let the farm program take care of the situation and so far as farm credit is concerned, let competition in the market have free play? It may be said in this connection that low competitive interest rates have also contributed to the possibility of getting away from emergency credit.

As I see it, we are in some danger of going to extremes in our handling of farm credit. The old system, under the factors that then existed, was sound but was a bit inflexible and was lacking in human sympathy. From that position we seem to have been in more or less of a hurry to extend more and more credit and financial aid to more and more people on easy terms without sufficient regard to its possibility of success or its desirability, or the effect of such a policy on the credit structure in general, of the welfare of the farmer himself.

Professor Young calls for a unified land policy so that the objectives of our active progress may be more clearly set forth and so that our objectives will not be conflicting. With this, we are no doubt all in accord. He feels that if the farm credit policy were coordinated with the AAA, a stiff policy should result since this would contribute to production control. I am unable to follow his line of reasoning here. The whole background of the Department of Agriculture projects in the past has had little or no relation to credit, or if it has been related to credit, it has been based on an easy credit program, or on what might be classed as financial relief rather than

sound credit. With this background it is difficult for me to believe that the Department of Agriculture could with ease deal out easy credit with one hand and stiff credit with the other, but a unified land policy would not in my opinion call for a close union between the administration of farm credit and that of the AAA programs.

I was particularly interested in Professor Young's views of subsidized credit and his conclusion that once we develop a system of Government subsidized credit for other than emergency periods the result will inevitably be management control by the Government. It might be said also that if institutional lenders follow the Government into subsidized credit the result would be management control by private lending institutions also. He mentions both the subsidy in interest rates and the subsidy in Government loans to individuals, the principal amount of which is in excess of what could be loaned in a free market, but he discusses chiefly the effects of the latter form of subsidy.

I wish to say one word as to the subsidized interest rate on farm mortgages by FCA. Even if it were conceded that a subsidized interest rate below the competitive market could have been justified a few years ago, it would seem to me to be very difficult to justify it at the present time from any economic viewpoint. With the return of farm income to more than \$11,000,000,000 in 1940, a great majority of farmers should be able to pay the competitive market interest rate and that rate at the present time certainly compares favorably with long time interest rates to other business and other individuals. A recent release, the FCA calls attention to the fact that borrowers through Land Banks and The Land Bank Commissioner, during the first nine months of 1940 paid back on principal an amount in excess of \$114,000,000. This, of course, is highly desirable and an indication of a healthy situation, but if farm borrowers generally can pay such substantial percentages of their principal debt it would seem that they could easily take care of the small interest subsidy which the Government now pays. From the practical standpoint, after all, the matter of one-half of one per cent on the average farm loan is a comparatively insignificant matter when compared with the price obtained for farm commodities. An increase of 5¢ a bushel on the average corn crop on a good 80-acre farm in the Corn Belt would be in actual amount more than six times the amount of saving that one-half of one per cent gives a borrower on an average loan on the 80 acres (figuring a yield of 2500 bushels of corn and a loan of \$60 per acre on the land).

I would concur also with Professor Young that an easy credit policy made possibly by Government subsidy in the way of excessive loans at subsidized rates leads inevitably to the supervision of the management of farms, where the profit goes to the borrower and the risks to the lender. In other words, the Government or private company making an excessive loan becomes a partner with the debtor and shoulders a considerable part of the responsibility. It is without question a dangerous situation where an investor abandons his position as lender and accepts the responsibilities of a partnership—usually a trouble partnership.

Professor Young points out the large expense of a credit program involv-

ing management on the part of the lender. Most of those who have had experience with such situations will agree, I think, that the expense must be very large and the results quite unsatisfactory. I am not so sure but what the effects on the morale of the farm borrower of such management is not more to be deplored than the actual cost of carrying out the program, and when I speak of this, I am thinking of the farmer both individually and collectively. The borrower who has only a very small investment in a project does not have the incentive to push the project to a successful conclusion as does the borrower who has a considerable stake in the proposition. Certainly in so far as the lender is concerned, if the latter is also to assume management responsibility and permit the borrowed to get all the benefits thereof, there is little incentive to the borrower to do the job. Certainly, in so far as individual independence is concerned, it is all in the wrong direction. In so far as the farmers as a whole are concerned, it naturally brings us to the suggestion of Professor Young, that under the present trend it is highly desirable to establish a line separating rehabilitation cases from business credit. Any other course must prove to be most expensive to administer and must result ultimately in the elimination of competitive credit. Even further than that, it will be destructive of the independence and initiative of good farmers if they are to be placed on the same credit basis as those who have no sound basis for credit but are merely receiving financial relief in the hope that they may develop a basis for credit. It would seem to be a fundamental economic law that unless a line of demarcation is established the ultimate result must be to have farm credit as a whole sink to the level of financial aid, rather than to have it result in the raising of the rating of the poorer financial risk to a genuine farm credit standing.

METHODS OF WAGE DETERMINATION IN AGRICULTURE*

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Wage-rates are prices. Wage determination is, therefore, a phase of the function of price-making. Because of its direct relation to a great number of human factors, it presents special problems of equity, of technique, and of social implication which are not so evident in the pricing of commodities. It does nevertheless contain many of the elements of a market problem such as the necessity for bringing seller and buyer into a practical bargaining relationship, the elements of demand and supply, of perfect or imperfect competition, and of time and place of offering potential service. In addition, the labor market is affected by a great many institutional forces such as protective legislation for the worker, public attitudes with respect to conditions of work, and established views about equity in the distribution of a given industry income. Customary rates of pay also operate as frictions inhibiting complete fluidity in the situation. In addition, there are very important interests which extend beyond those of the immediate parties to the wage bargain.

It is well known that the wage making process for agriculture has lacked many of the refinements and developed techniques which prevail in other industries. This is particularly true for the United States where, except in the cotton states, we have not had a permanent wage-hand class. Heretofore the prevalence of the family farm requiring little wage labor, the opportunities for progressive advance of the farm worker to entrepreneurial status, and the widespread use of sons of neighboring farmers all have operated to keep at a minimum both protective legislation and efforts at unionization.

Conditions in the national economy seem now to be making considerable changes in this pattern. Requirements for labor in United States agriculture are no longer expanding, relatively few new farm units are being created, and, at the same time, barriers to the ready movement of surplus labor out of agriculture into urban industry have become increasingly significant.¹ As a result, more people are

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¹ Estimates by Shaw and Hopkins show a decline of total employment in United States agriculture from 12,209,000 persons in 1909 to 10,997,000 in 1936. In the same period hired workers declined from 2,868,000 to 2,494,000. Data from: Trends in employment in agriculture, 1909-36. WPA, Washington. 1938. p. 11.

facing the prospect of remaining permanently or for long periods in the agricultural wage-laborer class, and the composition of this group is being modified. It now contains more heads of families than in earlier periods and problems of family and child welfare are more prominent. At the same time numbers of workers available, in proportion to numbers needed, have become larger. This situation brings with it dangers of exploitation and also the problem of excessive spreading of limited amounts of employment among a more than adequate labor force.

Throughout most of the nineteenth and early twentieth centuries, farmers have assumed that the natural and logical basis for wage determination is an open competitive market with agreements arrived at individually by both employer and employee. This has, in fact, been the traditional procedure over much of the United States, and has resulted in surprisingly little friction. There are various reasons for this. For one thing, neither employers nor employees were organized. Hence the employee did not have a strong feeling that he was confronted with a vast inequality in bargaining power. No doubt the employer was in a stronger bargaining position than the employee, especially at certain times and places, but the advantage was usually not so great as to cause bitterness and resentment. Conditions of living were on the whole quite similar for employer and employee and the two worked shoulder to shoulder at many of the daily tasks. For another thing the employee, if a farmer's son, had as much the viewpoint of an employer as of an employee. He expected, or at least hoped, to become presently if not an employer at least an independent entrepreneur. While no doubt considerably short of the ideal as a labor relationship, these conditions were not in most areas occasion for serious community concern, nor did they give rise to important class conflicts.

Only as farm labor came to be employed in larger groups and under more industrialized conditions did serious problems of labor relations and of inequality of bargaining power arise. These conditions arose rather early in certain localities, particularly in the Pacific Coast states and in the Great Plains wheat belt. In the Pacific Coast area labor troubles were considerably deferred by the type of help used. It consisted in the main of foreign groups (Chinese, Japanese, Mexicans, East Indians, and Filipinos); groups which had little standing in the eyes of employers or of urban labor

organizations. White help employed consisted, in the main, either of neighbors' sons or of a highly migratory single-man type which until recently was totally unorganized except for sporadic and nebulous attempts made by the I.W.W. After 1930 the problem became more general and labor friction developed not only in California but in the South, in the sugar beet areas, and in the vegetable and fruit sections of the eastern and southeastern states. Labor difficulties in the wheat belt have largely disappeared as a result of extensive mechanization of that industry and the virtual cessation of the earlier flow of migrant workers engaged in the wheat harvest. Fruit, vegetable, cotton, and sugar beet production now provide the most significant conditions of labor conflict.

In American agriculture there has been little development either of unofficial collective bargaining or of official procedures for settling labor disputes. Some beginnings along this line which, so far as we are aware, are confined almost wholly to California, seem to warrant mention here.² Of these, only one, the Santa Maria Arbitration Board, appears to have marked any real progress toward orderly procedure. Reserving this for fuller discussion, brief mention will be made of a few other undertakings, some of which were earlier and some later than the Santa Maria negotiations.³

One of the earliest of these measures was the establishment by the Governor of California of a board designed to forestall labor troubles in the cotton harvest of 1934. This board consisted of three members none of whom represented either employers or labor. It is also probably fair to say that they had little intimate knowledge of the industry. At the hearings, growers recommended a cotton-picking rate of 60¢ per hundredweight, while labor asked a rate of 90¢. The board recommended 75¢ but did not make any public

² Beginnings were made in the organization of farm workers in several areas (mostly after 1930), but most of these unions seem not to have gained a strength and standing that resulted in actual collective bargaining with employers. S. C. Sufrin in his article, *Labor organization in agricultural America, 1930-35*, *Amer. Jour. Soc.*, January 1938, p. 548, places the number of agricultural workers' unions in 1935 at 98, of which 66 were in the Mountain and Pacific states.

³ Wage arrangements in the sugar beet areas under the Jones-Costigan Act have been discussed rather fully in other connections; hence, in the interest of brevity, are omitted here. The procedure established under that Act merits fuller discussion than we can give it, and has in itself afforded scope for several articles. For fuller discussion of this arrangement and its results see W. T. Ham, *Sugar beet field labor under the AAA*, *Jour. Farm Econ.*, May 1937, p. 643-647; Elizabeth S. Johnson, *Wages, employment conditions, and welfare of sugar-beet laborers*, *Monthly Labor Review*, February 1938, p. 323-340; and O. E. Mulliken, *Agricultural labor in the sugar industry*, testimony before the Senate Committee on Education and Labor, May 20, 1940. (Mimeo.) AAA, U.S.D.A., Washington.

statement of the basis for its judgment. The rate arrived at was an average of the two rates recommended. This board had no definite legal status, no machinery for enforcement, and was not set up at the request of the parties to the controversy. Hence its influence was very limited, and the plan was not followed up in succeeding years.

Beginning in 1935 and continuing to the present time, cotton-growers of the San Joaquin Valley have met annually to agree on a rate to be paid for cotton-picking. These meetings have been entirely unofficial and have given but very little recognition to representatives of labor. Some degree of success in maintaining the rates set has been possible only because of an over-supplied labor market and the consequent weak bargaining position of the pickers. The procedure is unrepresentative and undemocratic, and has aroused much resentment on the part of labor. It marks no significant step forward in the settlement of labor difficulties. Somewhat similar steps have been taken with respect to certain other operations such as the grape harvest and fruit picking, but these have been less rigid and not so much in the public eye.

In the spring of 1939, Mr. Carey McWilliams, Commissioner of Immigration and Housing, was sent to Madera County by Governor Olson to hold hearings in regard to wage-rates in cotton chopping. A large group of agricultural workers had threatened to picket the local offices of the State Relief Administration in protest against the suspension of relief for agricultural workers where employment was available in cotton chopping at an hourly rate of 20¢. This step was taken in an effort to forestall strife but without the invitation of either party to the dispute. Conditions were most inauspicious, and the effort did not succeed in preventing considerable friction and some violence later in the season.⁴ As in 1934, the lack both of recognized authority for such a move and of any machinery for enforcement of decisions limited the effectiveness of the undertaking.

Again in September of 1939, Governor Olson appointed a committee to recommend a rate for cotton-picking at which the relief administration would be warranted in requiring recipients of relief to accept work if offered. This involved a number of implications

⁴ See discussion of these activities by Carey McWilliams in testimony before the Subcommittee of the United States Senate Committee on Education and Labor at San Francisco, December 21, 1939.

which we will not go into here since the procedure did not apparently mark any important step toward orderly procedure for wage-determination. While the committee's decision, technically, did not seek to impose a wage-rate generally throughout the industry, there was a widespread feeling, especially on the part of labor, that it was supposed to do so. The committee itself split sharply on the rate to be recommended, and submitted majority and minority reports.

Of the various measures for solution of labor difficulties in California agriculture, the most carefully worked out and successful was that undertaken in the Santa Maria Valley in 1934. This is a small, rather isolated section near the coast which is mainly engaged in vegetable production. The labor organizations involved were the Mexican Labor Union, the Filipino Labor Union, the Vegetable and Fruit Packers Association (an A. F. of L. unit), and a somewhat nebulous local organization of employers. Many of these latter were, however, members of the Western Growers' Protective Association, an organization composed mainly of large-scale operators in California and Arizona. These organizations agreed to the establishment of an arbitration board to be made up as follows: one representative appointed by the California Department of Industrial Relations, one appointed by Mr. E. H. Fitzgerald, labor conciliator with the Los Angeles office of the United States Department of Labor, one appointed by the Agricultural Commissioner of Santa Barbara County, one each appointed from the three workers' unions, and three appointed by the employers.

This board met at Santa Maria in December 1934, March and May 1935, and January 1936. Hearings were held, and various decisions were reached. Machinery was set up for carrying out the arrangements agreed on and for handling minor adjustments. The following are some of the problems with which the board concerned itself:⁵ Wage rates; nondiscrimination for union activities; protection of wage-scales in contract work; individual payment to

⁵ The results of these negotiations are to be found in the following mimeographed sources issued locally:

Report and findings of Arbitration Board, Santa Maria, Calif., December 14, 1934.

Decisions reached by Arbitration Board after executive session held at Santa Maria, California, Saturday, March 30, 1935; after open meetings held on March 29 and March 30, 1935.

Decisions of Santa Maria Arbitration Board as of May 14, 1935.

Report and award, Santa Maria Valley Arbitration Board (January 8, 1936), and Agreement signed on the 18th day of November, 1936.

workers operating under contract; length of work week; payment for overtime—weekly basis; length of working day; payment for overtime—daily basis; payment from time called; first aid kits; sanitation of buildings; preference to resident workers; paying transportation from field to field; and maintenance of employment offices.

The arrangements applied to all operations in the Santa Maria Valley but not beyond that area. The agreement was for a period of two years, after which time it was to be continued under a local committee unless differences should arise which could not be settled in that way. A grievance board was set up. This consisted of a workers' representative, an employers' representative, and a third member selected by these two. The meetings of the arbitration board in March and May 1935 and in January 1936 were to clear up minor difficulties or omissions in the agreement. Since that time a local committee has handled the situation, and it has not been found necessary to call the arbitration board together again. Enforcement of the agreement has rested chiefly on public opinion. Some difficulties on this score have arisen, but means seem to have been found for settling them locally.⁶

In the second season the composition of the board was changed at the insistence of the chairman. Both the labor and employer representatives were discontinued, leaving a board of three consisting of the public representatives. This was done because of the fact that the employee and employer groups tended to vote and argue as units and to impede judicial handling of the problems before the board. It was felt that the presentation of partisan positions could better be made to the board from outside than from within its membership. Whether this position is well taken is, of course, an arguable question. Obviously the modification made would not be acceptable unless both labor and employers had considerable confidence in the fairness and ability of the nonpartisan members of the board.⁷

⁶ There were some elements in the Santa Maria situation which contributed to its success but which often are not present in other localities. The arrangement applied only to a small, rather homogeneous area and hence was less complex than in some sections. In addition, the leadership in each of the groups was apparently such as to win some degree of confidence on the part of the others. Unfortunately there is all too often a lack of qualified and constructive leadership on one or both sides to labor controversies of this kind.

⁷ The senior author of this paper takes full responsibility for such elements of appraisal as appear in the preceding comments. Professor Adams, who served as chairman of the board, has confined his contribution in this section to factual material.

Turning from this highly localized and rather unique experience in agricultural labor relationship, we shall consider briefly some of the more general kinds of procedure though time does not permit extensive review even for American agriculture. The traditional attitude of the employer group in this country has already been sketched. In recent years it has been modified, particularly in the Far West, by steps designed to facilitate united action by the employers. These efforts have been in the main negative rather than positive; that is, efforts to forestall or minimize unionization among farm workers rather than to create a means of bargaining collectively with them.

The labor view in American agriculture has on the other hand followed pretty closely the attitudes developed in urban labor organization; namely, chief reliance on unionization, usually of the craft-union type, and collective bargaining supported by the threat of strike. For reasons already mentioned this has not been very effective as a bargaining arrangement since employer groups have in many cases refused to meet with union representatives. Thus demands followed by strikes but unaccompanied by orderly bargaining have been frequent. In these struggles the employees have usually been in a weak position because unorganized labor was available in large quantity, particularly since 1930. Very recently there has appeared a growing interest on the part of employee groups and of some employers in officially established bargaining machinery. Employers recognize that the absence of bargaining does not prevent unionization and strikes. Employees are coming to realize that the techniques of urban labor relations may not be well suited to farm conditions.

In other countries wage-determination for agricultural workers has been carried out under a variety of procedures. In the Scandinavian countries, particularly in Sweden, collective bargaining through voluntary unions has become well established. This procedure is backed by a considerable body of regulatory legislation and presents in a general way the pattern which has been applied to American industrial labor under the National Labor Relations Act. The results have been, on the whole, satisfactory, at least from the labor standpoint. There is considerable complaint from employers on the score of undue rigidity, particularly in connection with the supplementary legislation on wages and hours.⁸

⁸ See The regulation of hours of work in Swedish Agriculture, International Labor Review, May 1939, p. 633-647.

In Italy, under the Fascist regime, there has been developed through what is known as the "corporate state" a system which is reminiscent of the guild system which prevailed in England a century and more ago. Workers in the various lines, including farmers, are represented by their respective state-recognized syndicates.⁹ Collective bargaining of a sort exists in all lines, in that the official representatives of the various groups represent the interests of their constituencies in the counsels. Such representatives are, however, appointed rather than elected, and the final decision on disputed points rests with a representative of the government rather than with the direct representatives of the special interest groups. The interests of the State are of course regarded as paramount. The system involves considerable elements of compulsion on both employer and worker. Communal employment offices under control of the local Fascist organizations have the exclusive right of placing workers. All unemployed workers are required to register. Workers accepting employment offered through any other intermediary are subject to heavy fines. Farmers, on the other hand, have been required to take certain specified numbers of workers in order to reduce unemployment. Employment is given to workers who have been out of work longest, and preference is given to workers with families, or on other bases considered to warrant special consideration. Failure to accept jobs assigned results in discontinuance of relief or other benefits which may otherwise be allowed.¹⁰ Farmers likewise are subject to very considerable restrictions on their freedom of action. Their crops are purchased by government agencies at agreed prices. In the determination of these the farmers are accorded a hearing through their representatives, but the government has the final say. Farmers also are under compulsion to farm with reasonable efficiency, and can be displaced from their land if they fail persistently to live up to standards set. Actually this pro-

⁹ Theoretically, freedom of professional or syndical organization exists. In practice only one organization can function. See, for example, Benito Mussolini, *The corporate state*, Rome, 1933, in which he states (p. 113): "There is complete freedom of professional or syndical organization. But syndicates legally recognized and subject to State control alone have the right of legal representation of the whole category of employers and workers for which they are constituted; they have the right to protect their interests in their relations with the State or with professional associations; they stipulate collective labour contracts binding on all those belonging to the category; they levy their dues and exercise with regard to them functions of public interest devolving on them."

¹⁰ These arrangements are much more fully discussed in Carl T. Schmidt's *The plough and the sword*, Columbia University Press, 1938. See especially Chs. 6 and 7.

vision of the law has not been widely used. It has operated mainly as a threat.

In Germany, under the Nazi government, the system has many similarities to that of Italy, but is more rigid and more bureaucratic. Workers and farmers, through their organizations, have less to say about decisions made. All must belong to their respective organizations and must pay dues.¹¹ Funds thus acquired are used, however, at the discretion of the government and by employees of the government. Prices are rigidly controlled, and arbitrary transfers can be made if considered to be for the interest of the State. For example, economic rents arising from good lands may be and are in some measure absorbed and transferred as subsidies to make production possible on submarginal land. It should be recognized, of course, that both Germany and Italy had their economies organized substantially on a war basis long before the outbreak of hostilities in September 1939.

In Russia the emphasis on collective farming has placed the whole labor situation on a rather unique basis, such that the procedures have little significance in connection with the current problem in the United States.

Britain, on the other hand, has been using since 1909 a procedure which is markedly different from that of the United States and also distinctly different from the other foreign systems mentioned above. The British plan provides a universal collective bargaining procedure through officially established wages boards. These include representatives not only of the employers and employees, but of the public as well. They are far more democratic than the Italian, German, and Russian systems, but less so than those of Sweden or the United States.

While this plan was applied first to industrial labor, we shall, for lack of space, omit discussion of that and deal specifically with the agricultural wages boards. On these boards the representatives of labor are appointed by the Minister of Agriculture from nominations made by the workers' unions. In like manner the employer

¹¹ The German situation was really a freezing of conditions following a period of considerable forward-looking development under the Weimar Republic. It contains therefore a good many features that might not have been developed had they not been in effect when the Nazi regime took over. The present system involves more bargaining than appears on the surface. Employers as well as employees are members of the Labor Front. Thus discussions and conflicts tend to occur within the Labor Front, and do not come to the attention of the public as they would do if employers and employees had separate organizations.

representatives are appointed from nominations made by the farmers' organization. In addition, each board (usually for a given county) includes two representatives of the public appointed by the Minister of Agriculture. The chairman is elected by the board but must be one of the public representatives.

This system, first established as a war measure in 1917, was repealed in 1921. Following serious labor disturbances in 1923 the plan was reestablished in slightly different form in 1924 (for England and Wales) and has been in use since that time. In 1937 it was also introduced in Scotland. The 1917 act provided for final determination of wage-rates by a central board on advice of the county boards. Despite the efforts of labor, this provision was omitted in the act of 1924, and final decision was placed with the county boards. Very recently, with increased influence of labor in the government, the power of final determination has again been placed in the hands of the central board.

Turning again to the American situation, we shall give attention mainly to the problem in those areas where agriculture is considerably industrialized; that is, where a given employer has a relatively large number of employees. It is under these conditions that labor conflicts most frequently arise. Where farming has taken on this form, the conditions of the past few years are unsatisfactory in the eyes of nearly all of the parties concerned. Labor has little chance for orderly bargaining and, as a result, finds itself either a helpless pawn in the situation or perhaps crowded into the costly and hazardous procedure of the strike to attain what it regards as its rights. The employer is subjected to great expense and a good deal of public condemnation. The public suffers numerous losses both material and non-material. The search for betterment of these conditions leads to consideration of the various ways of establishing wage-rates. The principal ones are the following:

1. A completely unorganized labor market in agriculture with entirely individual bargaining.
2. Bargaining by unofficial organized groups both of employers and employees.
3. Some type of official wage or arbitration board.
4. A highly organized totalitarian system such as those of Germany, Italy, or Russia.
5. Direct legislative determination of wage-rates and hours.

6. Indirect regulation by government as under the Jones-Costigan Act.

7. The reduction or elimination of wage labor in agriculture through farm subdivision; that is, the universal establishment of farms that can be worked by the operators' families. There are, of course, many variations of each of these. However, most devices can be roughly classified under one or another of them. They need not be mutually exclusive and the programs of most countries include combinations of two or more of them.

As we have already stated, wage bargaining in a completely unorganized labor market may not be seriously inequitable so long as employees are few per farm and neither group is organized, especially if labor supply and demand are roughly in balance and employees work in close contact with employers. As soon, however, as employees per employer become numerous as on the large or industrialized farms, if the labor force is materially larger than that needed, the employee's situation is greatly weakened. He can hope for little beyond the barest subsistence wage, and the improvement of housing, hours of work, and other living conditions will rest almost wholly on the benevolence of the employer. Hiring and firing are completely at the discretion of the employer and may be used not only to crowd down wages but to force speed of operations.

It is possible, of course, for the worst evils of this situation to be mitigated by legislation curbing the full impact on labor. Thus minimum wages may be established, child labor may be prohibited, ceilings may be placed on hours, and definitely inadequate housing may be outlawed. All of these measures, however, even if enacted, necessitate policing and are essentially negative in character. They lack the constructive elements that might come from joint planning for better conditions by labor and management. Furthermore, legislation of this kind is not likely to be attained unless workers have become organized.

The second alternative, namely, collective bargaining by voluntary organizations, is the one traditionally favored by American labor. It presents many more difficulties in agriculture than in urban industry. Membership is difficult to get and even more difficult to hold. Workers are widely scattered and highly mobile. Their incomes and dues-paying abilities are very low. A long-standing community attitude favorable to open-shop conditions must be

reckoned with. Picketing or other enforcement measures are exceedingly difficult and expensive because of the widely scattered places of employment. Workers' meetings are much more vulnerable to hostile action than in cities where police and other protection are available as well as a certain anonymity which results from mere numbers of people. Furthermore, on many farms the farmer's own family constitutes a part of the labor force and may step in to offset the disaffection of a small hired labor force. Under these conditions unionization to be effective must be very complete, and the attainment of full unionization or, in its absence, of effective strike power, is likely to lead to violence and community hostility. Farm workers have, to be sure, the same basic right to organize as have farmers or urban wage workers. Actually, however, it is much more difficult for them to do so, and efforts along this line have not been notably successful.

Direct legislative determination of wage-rates and hours has already been considered in some measure. It tends to be unduly rigid, and at best is likely to cover only the barest minimum of standards rather than those which are really desirable as objectives in themselves. Such outside limits of tolerance are probably desirable as a preventive for the most extreme abuses, but are not likely to be regarded as adequate by the labor groups nor to be a preventive for other lines of effort such as have been discussed above. Most of these comments apply also to such indirect governmental action as that under the Jones-Costigan Act.

The totalitarian systems need not be discussed here. Even if they were satisfactory goals they could not be introduced without fundamental changes in our form of government, and it seems entirely clear that such changes are not desired either by employees or employers in the United States.

The seventh alternative is, to be sure, advocated, at least by implication, in the writings of some American students of the problem. We shall not attempt here to go into the merits or demerits of large-farm subdivision. Realism requires the assumption that even though some subdivision may occur there will continue to be a considerable number of large employers of farm labor. Furthermore, in the intensive vegetable, fruit, and sugar beet areas even relatively small farms must use considerable amounts of hired labor during certain seasons of the year. Considerable migrations of seasonal labor have been customary even on the relatively small farms of

continental Europe, and there seems little prospect of complete elimination of wage labor on American farms.

The wage board plan is not entirely foreign to the American picture though its use has been exceedingly sketchy and the legal status very hazy. Mention has already been made of a few rudimentary developments of this kind in California. The results of these have not been encouraging. The British plan, however, with its definite legal authorization and orderly procedure appears to these writers to offer significant possibilities for bringing into the chaotic labor conditions of American agriculture a more orderly and equitable means of adjusting labor difficulties. Its advantages are of the following kinds:

1. Decisions are made on the basis of supposedly equal representation; that is, employees and employers have an equal number of votes on the boards. This does not, to be sure, eliminate entirely the possibility of a weak bargaining position due to excess of workers, nor is it always true that equal numbers on a board assure equal abilities in furthering the interests of the two parties. It may be also that the so-called public representatives will be more aware of the problems of one side or the other. Such a program can work well only if the public representatives are of high caliber and judicial in temperament.

2. To be effective as bargaining agents neither the labor unions nor the employer organizations need to resort to extremist arguments, excessive propaganda, or strong-arm methods. A representative but not necessarily large organization can function effectively.

3. Growers willing to pay an established wage cannot be undercut by others less able or less willing to meet the standards set up. Standards established apply automatically to the whole jurisdiction.

4. The plan allows adequate flexibility to meet the needs under widely varying conditions. Since jurisdictions are usually coextensive with county boundaries a rigid framework need not be applied over a large area like a state.

5. Enforcement of standards is official and has the backing of the government, including the courts.

6. Problems relating to hours of work, holidays, overtime, etc., can be adjusted without the use of extravagant public demands and later necessity for face-saving.

7. Some of the problems of regularization of work, preferential hiring of established resident workers, and planned provision of housing could be worked out in ways that are virtually impossible where employees and employers do not meet around the conference table. Thus the way is opened for constructive planning in labor relations, for the use of dependable information derived from sources acceptable to both groups, and for the conciliating influence of representatives of the general public.

It would be naive to assume that any particular mechanism would eliminate all frictions in a highly controversial situation such as that here under consideration. It is significant, however, that in England, despite the fact that strikes are not prohibited, there have been no strikes of any importance since the act establishing these boards was passed in 1924. In the interim between the repeal of the earlier act in 1921 and the passage of the new act in 1924 a very serious strike involving 10,000 workers did occur.

Next in importance to the problem of mechanisms for establishing wage-rates, to which we have possibly given too much space, is the problem of arriving at principles on the basis of which decisions can be made. Here we enter a far more controversial realm. From the standpoint of labor we have such criteria as minimum requirements for living, fair share of the product, an American standard of living, etc. On the farmers' side, discussion frequently stresses the farmer's ability to pay, though a very common farmer view is that a wage based on balancing labor supply with labor demand is the most appropriate level. Nearly all of these criteria lack definiteness of conception, perhaps purposely. A definite criterion, even if available, might not be a satisfactory slogan for bargaining. At the same time, wage-determination, if approached in terms of negotiation and consideration of the public interest, must rest on some assumption as to what is a proper wage. Such assumptions may be either stated or implied. In the industrial realm government activity (in the United States) has sought to assure protection to the workers in organizing for bargaining and to define their rights in this connection. Beyond this there has been little attempt to inject a positive public interest. At times public agencies have stepped in where public interests seemed definitely in jeopardy, but usually the problem has been regarded as one for settlement between the parties directly at interest. We have pointed out, however, that, in our opinion, it will be difficult for agricultural workers and em-

ployers to work out their problems through the kinds of procedure now established for industrial labor, even if similar aids are provided. We shall confine our remarks solely to the agricultural part of the problem. Space permits only a very brief and rather categorical resume of some of the bases which might be used in arriving at a policy.

Labor is interested in the level of wages, in job security, in the character of perquisites and ways of handling them, in preferential hiring, and in the continuity of work. Farmers are concerned with the level of wages, with assurance against disastrous strikes at critical times, with the availability of help, and similar matters. The public concern is mainly with effects on community income, with the adequacy of incomes for decent living, with effects on social conditions in the community, and with the relation of laborers' incomes and work conditions to relief problems. Since it is difficult and somewhat confusing to generalize broadly for different conditions, we have chosen to discuss certain principles with particular reference to conditions in California, hoping that the underlying ideas may not be wholly inappropriate to other areas.

At present the attention both of employees and employers tends to center on wage-rates rather than incomes, and to ignore almost entirely stability of residence for the worker. A first approach in the public interest, in labor's interest, and probably in the employer's interest would be to try to stabilize employment and residence for such numbers of workers as are really needed in the industry. By a constructive joint effort along these lines much could be done. Surveys could be made of the timing and amount of the labor load; of the possibility of spreading given tasks over longer periods with more continuous work for fewer people. To be effective, this procedure would have to be accompanied by preferential hiring for local residents, a moot point with employing farmers because of their dislike of the closed-shop idea. If, however, employee and employer representatives could study this jointly and constructively, it is possible that arrangements could be worked out without making them so rigid that they would create serious opposition. If such a plan were used successfully, the result would be to employ fewer workers and to reduce mobility for some of them. Others who now secure some part of the employment would be reduced more completely to relief status, but would present a more definite incentive for public action in creating opportunities in

other lines of work. The social values which might be achieved would seem to outweigh the disadvantages.

On the score of criteria for determining wage levels much remains to be done. The so-called "ability to pay" cannot in itself meet the situation. It is obvious that some employers have greater ability to pay than others. Yet wage-rates must be approximately equal for a given area at a given time. At times nearly all farmers operate at a loss. At other times their returns may be quite large. Land qualities vary widely. Some lands can be operated at given wage and price levels but must be turned to less intensive uses if wages are higher. This is, of course, the problem of the marginal firm whether in agriculture or in industry. In intensive California agriculture, where wage-costs per acre are relatively high, the marginality of given lands for given uses becomes more clear-cut than in areas where less labor per acre is used. Ignoring for the time being the positions and relative bargaining strengths of employees and employers society must, under conditions of surplus labor, seek a rough balance between minimum wages it is willing to countenance and the amounts of land and labor to be kept out of intensive agricultural production. With a given wage and price situation, it pays to operate intensively lands down to a given level of productivity. With higher wages and the same price of product, some of this land will be unprofitable and will eventually revert to less intensive uses. Such adjustments are very irregular, halting, and inexact. Nevertheless this is the broad general tendency.

Whatever this level of wages and prices may be, some farmers will be able to pay more than others and there is no single wage level that represents farmers' "ability to pay." Variations in ability to pay cannot be reflected significantly in varying wage-rates for different workers. It is obvious that widely differing wage-rates for the same work on adjoining farms would create chaos even though the two farmers might have markedly different wage-paying abilities. Such differentials in ability to pay, if functionally related to differences in land quality, tend inevitably to be reflected in land rents rather than in wage-rates. If they are to be captured and re-distributed, it must be through taxation rather than wages. The public is therefore concerned with the relation of wage-rates to marginality of production.

Since farm wage-workers are one of the lowest income groups of

our economy, it is presumably in the public interest that wage-rates be pushed to as high a level as can be done without seriously reducing numbers employed. They may be pushed higher so long as the public chooses to support in idleness or to create other work opportunities for larger numbers of workers crowded out of agriculture. The public attitude generally has been to create higher and higher minimum standards below which people would not be expected to work even though they thereby become public charges. Either limitation of production to those firms or areas which can meet these standards or an advance in price of the product sufficient to meet such added costs is assumed to be in the public interest. We can contract the margins of intensive production and enable the workers still employed to absorb a larger share of the gross return, most of such share coming out of economic rent, or we can expand the margins through low labor costs and thereby reduce the share going to labor on the better lands.¹² This reasoning rests, of course, on the principle of marginal productivity of labor. While that principle may not have universal applicability, it probably hits nearer the truth for the conditions here under discussion than for some others.

Income needs of workers are likewise not a definitive basis for wage determination except as the public may choose to establish minima and accept responsibility for those not employed at these rates. It is undeniable that some scope for variations in the return to workers and employers exists even though the margin of production does not shift. With widely varying year-to-year incomes such as occur in agriculture, the margin of production is not very closely determined by the profitableness of production in any short period. However, where wage costs are a very important part of total costs, unprofitable production tends to throw land out of intensive production fairly definitely and quickly.

This whole problem needs further exploration than we can give it in this paper. We have sought only to indicate something of the nature of the principles with which wage-determining bodies would need to work. Such matters as the effects of price changes on the ability of farmers to pay their labor and problems of practical and

¹² This assumes that the changes in quantity of product will not be large enough to affect price greatly. That assumption probably is warranted in most lines since much of the production is on farms where hired labor is not a large factor.

equitable adjustments of wage-rates to the vicissitudes of farmers in dealing with a very erratic market situation have been little explored.

Beyond the mere matter of wages there is a considerable realm in which orderly joint action by farmer and worker representatives could be constructive. Such matters as housing, home production of foods, child labor, labor of women, recreation facilities, and similar matters might be dealt with. It is entirely conceivable that improvements along these lines could be made without creating insupportable burdens for the farmer. Certainly agricultural production, no less than industrial production, is a joint undertaking of labor and management, and there is need for a more definite and equitable means of adjusting the respective claims of these factors to shares in the product. In such adjustments it is to be hoped that cooperation in increasing the product to be shared can also be achieved.

CHANGING STRUCTURE OF AGRICULTURE AND ITS IMPACTS ON LABOR*

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The number of persons employed in farming may be affected by changes in the number of farms, in the size of the individual farm units, in the combination of farm enterprises, or in the equipment with which the farm is operated. Every one of these has undergone some modification during the last 20 years.

Not all influences affecting farm employment, however, are found within the farm organization. The farmer may make a greater effort to economize labor than did his father because there are now fewer persons of working age in the farm family than there were 20 years ago. Or he may look for labor saving devices because prices of farm products are low in relation to wages. In some years labor may be used freely because machinery prices are relatively higher than labor; in other years, because a son has lost his job in a depressed industry.

We are interested not merely in the number of persons employed on farms, but also in their earnings and in their living conditions. Here an even more complex array of forces confronts us. Earnings of the family workers depend on demands for farm products and on prices of purchased factors of production. Wages of hired workers, on the other hand, are affected by the marginal productivity of labor on farms and by competing opportunities for employment in other industries. There is, however, a time lag between farm wages and those of competing workers. Further, competition between labor groups is imperfect because of lack of information about employment opportunities, difficulties of entrance into some occupations, and a traditional reluctance to move—recent migration to California notwithstanding. Obviously we cannot deal here with each of these subjects at length. But we need to list the main developments of the last 20 years if we are to understand what is happening to farm workers.

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A change in the structure of a farm's setup may imply either (1) a change in the relative size of various farm enterprises, or (2) a variation in relative proportions of the productive resources, as of capital to labor or to land. The second type of farm structural change may be caused by variations in values of the production factors, as by relatively low interest rates compared to wages, or it may represent simply a readjustment of means of production to newer and more economical methods, that is, purely technological changes. It scarcely needs saying that the latter influence has been particularly important during the period we are discussing,—since World War I. Even modifications in relative size of enterprise may be initiated by changes in technology. We need go no further than the shift from horses to tractors, with resulting adjustments in numbers of cattle and hogs to demonstrate this.

Principal Developments in Farm Technology

The outstanding technological change on farms during the past 20 years has been in the process of mechanization. In 1920 there were about a quarter of a million tractors on farms in the United States. At present the number is near a million and a half. In 1920 there were around 2 million automobiles and trucks on farms, while the present number is around 5 million. On the basis of estimates prepared by the National Research Project, adoption of the tractor has reduced farm labor requirements by about 500 million man-hours per year as compared to what would be required for present production by the methods of 1920. In addition, an estimated 300 million man hours per year has been shifted from the production of horse feed to other purposes.¹

The automobile and truck have affected agriculture fully as much as the tractor, but in a different way. Such vehicles have had a profound influence in transforming farm life and in breaking down subtle barriers that formerly existed between the rustic and the urban.

The Displacement of Horses

The largest influence of mechanical power adoption on farms has come through the displacement of horses. In 1920 there were over

¹ The estimated reduction in labor requirements include reduction in labor required to care for horses and to produce colts for replacements. The figures given, however, refer to farm labor only and do not allow for the partially offsetting urban labor requirements for producing the tractors, repairs, fuel, etc. See Eugene G. McKibben and R. Austin Griffin, *Changes in farm power and equipment, tractors, trucks and automobiles*, Natl. Res. Proj. W.P.A., Report A-9 1938, pp. 50-71.

25 million horses and mules of all ages on farms. At present the number is under 15 million. The reduction released nearly a million acres of crop land each year from the production of feed for horses to production of milk, eggs, and other products.

The change from hay to gasoline as a source of power, and from horses to cows as consumers of feed, does not at first glance seem to call for any very great reorganization of the farm. Of course, it was not quite as simple as that. The tractors were not all adopted where horses were displaced, nor did cows and chickens increase in just those places where horses declined. Nevertheless, that was the most important phase of the transition. It was enough to provide farm products to feed and clothe approximately a half million more people each year; or between 40 and 50 per cent of the increase in population since 1920.²

Meantime, mechanization helped to prevent a 25 per cent growth in farm employment which we might have expected had farming methods and farm structure remained the same as in 1920. Actually the average monthly number of persons employed in agriculture in 1920 is estimated at 11.4 millions, while the corresponding number for 1940 is around 10.4 million persons.³ Evidently other powerful influences were also affecting the productivity of farm workers as well as the amount of employment. The bulging "ever normal" granary lends emphasis to that.

Technological Improvements and Increased Yields

Demands for farm products are notoriously inelastic.⁴ Consequently whatever increases the yield of farm crops per acre, or of livestock products per animal from the same application of cost factors, leads sooner or later to a corresponding decline in farm employment. The most outstanding example of higher yields without corresponding increases in labor requirements per acre is found in

² O. E. Baker estimates the per capita requirements of cropland per person at about 2 acres. See, Agricultural land requirements and resources, Supplementary report of the Land Planning Committee to the National Resources Board, Part 3 (1935) p. 3.

³ See Eldon E. Shaw and John A. Hopkins, Trends in employment in agriculture, 1909-36, Natl. Res. Proj. W.P.A., Report A-8, 1938, p. 11, and Agricultural Marketing Service, Farm Labor Report, Mimeographed release, Nov. 15, 1940. p. 6.

⁴ Inelastic as regards the current demand schedule. Obviously, consumer preferences change; shifting demand from one food product to another over a period of years. A pronounced change in the distribution of national income would also be likely to shift demand schedules. Recent Government experimentation with the food stamp plan supports this statement.

the adoption of hybrid seed corn. Variety improvement has also been important with wheat, oats, cotton, potatoes, and other crops. Improvements in cultural methods, in spray materials and methods, and in fertilizer placement are other illustrations.

With livestock as well as crops there has been continuous technological improvement. Productivity of dairy cows and of hens has increased notably. Discoveries in nutrition, eradication of disease, and improvements of animal sanitation have all played important parts.

Loss of the Export Markets

Not all of the influences on farm employment have come from technological changes. Urban unemployment has reduced the demand for farm products at home, and a large part of the export market has been lost because of smaller demand from abroad. From 1927-31 to 1937-38 it is estimated that the labor required annually to produce cotton, tobacco, hog products, wheat, corn, and five major fruit crops for export declined by over 700 million man-hours. This is equivalent to a reduction in farm employment of something over 300,000 workers. However, the cotton storage program and the "ever normal" granary have delayed the full impact of the shrinkage in foreign demand.

I have listed, briefly, some of the main influences on the volume of farm employment to avoid the impression that we need to consider only mechanization, or that we need to consider only pronounced shifts in farm tenure or internal organization. It has been implied that the internal organization of the farm was able to adjust itself to most of the technological changes mentioned without great difficulty, and without appreciable change in size of the working force. This is true for the major part of the country; but in some areas reorganization of the farm unit has been far-reaching and the social upheaval has been severe.

Changes in the Farm Structure

Up to 1929 available evidence indicates that adjustments in farm structure were progressing gradually and with relatively little suffering on the part of the rural population. The chief exception to this is found in liquidation of inflated land values which followed World War I.

Even if we compare the years before the first World War with the end of the booming 'twenties, changes in makeup of the average

farm are found to be relatively slight. In 1929 the average farm contained 13 per cent more crop acres than in 1909. But most of this increase occurred in the Western Cotton, Small Grain and Range areas where land was being shifted from range to cropland. In most of the region east of the Mississippi increases were very small or there were actual declines.

During the same period, 1909-1929, the average number of animal units per farm increased 10 per cent. This again was made up of diverse movements for various areas and for various types of livestock. The number of horses quite generally declined, while milk cows and poultry increased in all areas. Hog production per farm increased from the Corn Area to the west, but declined to the south and east. Numbers of beef cattle per farm or ranch generally decreased.

What changes occurred in farm capital? In physical terms, 1929 farm capital goods differed from 1909, chiefly in that they included automobiles on most farms, a tractor on one farm in seven, and around 10 per cent fewer work horses per farm. There were other changes in the capital as well, but these were the principal ones affecting farm employment. The total amount of labor employed per farm in 1929 was about 8 per cent below that in 1909. But most of this decline occurred between 1916 and 1919, when men were moved from farms to munition plants or into the army. The average number of workers per farm in 1929 was almost identical with that in 1920, and so was the number of farms.

The Eventful Thirties

As far as farm structure and farm employment are concerned, the 1930's were far more eventful than were either of the two preceding decades. Depression cut off the outlet previously followed by excess farm population, and there was an increase of 6 or 7 per cent in number of farms during the first half of the decade. Many of these new farms, however, represented more or less temporary places of refuge from depression and unemployment rather than farms in the ordinary sense. The exact size of the increase, therefore depends largely on what definition of a "farm" one happens to have in mind during a given discussion.

A second major influence on agriculture during the 'thirties was in the succession of destructive droughts which forced many thousands of families to move from drought-stricken farms particularly

in the Small Grain Area and in the western part of the cotton Belt. New socio-political forces, working through the various depression-born government agencies, were perhaps as powerful and more lasting. Added to these influences are the losses of foreign markets, the slower growth of population, continued adoption of mechanical power, and other technological changes already mentioned. From all of these we might well expect a vigorous reorganization of the farm structure and wide changes in employment.

Actually the average acreage of crops per farm for the entire country was 14 per cent lower in 1939 than in 1929. About half of this decline came from a smaller absolute acreage and the rest from the greater number of farms amongst which it was divided. Declines in acreage were relatively small in the eastern areas but large in the Western Cotton, Small Grain, Range, and Northwestern areas which were still under the influence of the droughts. Corn acreage per farm declined by the same percentage as total crop acreage for the Nation, but increased in the dairy areas and in eastern cotton states.

Cotton acres per farm declined more than any other major crop, partly because of low prices and partly because of the AAA program. Acreages of small grain and hay rose sharply in southeastern states where feed as well as food crops were being expanded to take the place of cotton. The same trend toward producing more of the family living at home brought increases of a sixth to a third in milk cows per farm in southern areas and there was a considerable rise in hog production. These shifts softened the impact of low priced cotton, though they are far from offsetting it.

In other areas numbers of milk cows increased, while hog production declined. This shift accompanied the expansion in forage crops which was encouraged by the various AAA programs. A large part of the decline in hogs, prior to 1937, however, was attributable to shortage of feed resulting from drought. Consequently it cannot be regarded as at all permanent.

The decline in horses continued, and from 1929 to 1939 amounted to nearly 25 per cent for the country as a whole. The smallest reduction in workstock (about 10 per cent) occurred in the Eastern and Delta Cotton areas, where there was least mechanization. The largest decline was in the Small Grain and Range areas. In Kansas there are now only half as many horses as in 1929, and in the western third of that state only one-fifth as many.

In many areas there have been increases in numbers of small and of large sized farms, with corresponding declines in medium sized ones. Since the increase in the small farms is largely a depression growth of part-time and subsistence farms, it is doubtful that it would last if there were a return to normal rates of employment. The increase in large farms, on the other hand, is likely to be more enduring. In semi-arid sections, it represents consolidation of farms that were too small to support a family with any degree of security, while east of the 100th meridian it may be attributed to adoption of larger capacity equipment. A concomitant of this expansion in size is seen in the increased practice of farming non-contiguous tracts of land.⁵

Effects on Farm Labor

How have these changes in farm structure affected the farm worker? Estimates of the Agricultural Marketing Service show a six per cent decline in employment on farms since 1929. At the same time farm population has increased five or six per cent, or around two million persons. At present it is estimated that approximately three and one-half million persons now on farms would not be there had migration from farms to urban areas been at the same rate during the 1930's that it was between 1920 and 1930.⁶ There seems little doubt that the advances in agricultural technology since 1929 would have permitted continuation of the farm to city population flow at a rate as great as that of the 1920's without farm products rising above their 1925-'29 price relationship to urban products.

The depression hit the various groups of farm labor very differently. In 1939 there were two per cent fewer family workers on farms than in 1929, while the number of hired workers was 20 per cent lower. As the depression deepened, hired workers were laid off. Also some sons or brothers of farm operators who had received wages previously, were retired to the status of unpaid family workers during the worst of the depression. From 1929 to 1933, while the number of hired workers declined sharply, family workers actually increased.

⁵ See Ross V. Baumann, Truman R. Nodland and G. A. Pond, *The tractor and its effects on farming in Minnesota*, U.S.D.A., and Univ. of Minn. (mimeo. Nov. 1940). See also J. R. Hays, *Indiana Bul. 450. Relationship of character of farming units to land management in two townships in Indiana*, 1940.

⁶ Conrad Taeuber, Bureau of Agricultural Economics, Testimony before Senate Committee on Education and Labor, May 6, 1940.

Between areas, also, there were rather pronounced differences in trends. In the Corn Area and the Western Dairy Area farm employment fell four or five per cent during the 10 years. The Eastern Dairy Area and the Middle Eastern Area saw relatively little mechanization. Instead they received an influx of unemployed persons from nearby cities. Here employment on farms in 1939 was about the same or slightly higher than in 1929.

The Problem of the South

It is the South that properly causes us the greatest concern regarding opportunities for farm employment. The Cotton areas were affected by loss of markets and by the cut in acreage under the AAA, so that cotton acreage is approximately 40 per cent less than in 1929, while the price is down one-half. In addition to this the western parts of the Cotton Belt were struck more or less simultaneously by drought and by mechanization.

In spite of a high rate of population growth, the Eastern and Delta Cotton areas suffered losses of farm employment of 10 per cent during the decade, while the Western Cotton Area, consisting of Oklahoma and Texas, lost 19 per cent, since 1929. Losses up to 5000 or 6000 persons, mostly of farm population are reported from some counties in the Texas Black Belt.

Even cotton planters who own their land outright would have not too easy a time without the AAA payments. Unfortunately, these same payments have brought opportunities for plantation owners to profit by at least partially mechanizing their operations and shifting croppers to a wage basis. Even though the share-cropper system has serious limitations, it involves a certain degree of economic security. The wage worker generally finds himself both with less assurance of a job and with a smaller income.

This shift toward larger farm units with fewer workers per 100 acres, and with a large proportion of casual wage workers rather than croppers, is easily the outstanding recent development both in farm structure and in farm employment. How much further the process is likely to go is a matter of conjecture. The displacement is not completed even in the Delta or the Black Belt, and a similar movement is spreading farther east, aided by the small tractor and by larger horse drawn implements than those previously used. To a large degree the amount of displacement will depend upon the availability of other employment, but, as has already occurred in

the Delta and Western Cotton areas, there is sure to be much displacement even without alternative employment.

Labor Displacement in Other Areas

The Small Grain Area, in spite of destructive droughts lost only 7 per cent in farm employment in the decade since 1929, and the Range Area only 4 per cent, largely because some sections were intensifying their agriculture by means of irrigation. By way of contrast, the Northwestern Area, to which large numbers of drought refugees migrated, saw an increase of 9 per cent.

California, as usual, represents a special case. From 1909 to 1929 the agriculture of the State was expanding, with increases both in numbers and in acreages of farms. Labor requirements and probably employment as well, increased by nearly a half. After 1929, however, many farm operations were mechanized rapidly and the migrants arriving during the thirties found more and more difficulty in obtaining employment. In spite of the great influx of drought refugees during the last few years, total farm employment in California appears to have declined between 1929 and 1939. The plight of the resultant mass of migratory farm workers has been so widely publicized by Steinbeck and others that there is no need to mention it here.

In eastern parts of the country as well as in the West and South, there is a well defined tendency for a family sized farm to employ less labor than formerly. If a year round hired hand was employed, he is likely to be laid off and a casual worker hired during the busy seasons. If extra labor was employed only during planting and harvesting, the amount is likely to be reduced after the farmer obtains a tractor with a combine, mechanical corn picker, or other large capacity machines. At the same time the increased number of dairy cows and of poultry leads to fuller employment than previously during slack seasons; but for a smaller total number of workers. In the Small Grain Area the retreat is still in progress from an agriculture too intensive for the prevailing climatic conditions. Even in the Corn and Western Dairy Areas fuller use of labor saving methods and further decline in farm employment appears to be in prospect.

It should not be supposed, however, that the large farm with many hired men is the type toward which we are moving. Labor is the factor of production that requires the greater part of the farm

operator's attention. Further, the difficulty of directing hired men effectively increases both with the number of men and also with the area over which their labor is dispersed, and this area grows greater with larger equipment. The family farm still has the advantage in the production of most staple crops, and of dairy products, hogs, and so on. Furthermore, it is easier to diversify on the medium sized, family farm than on the large one in order to make fullest year-round use of labor and to utilize farm by-products.

The optimum size of farm, however, varies with the type of enterprise, with the type of land, and with the type of equipment used. Each time the capacity of equipment is increased, the optimum size of farm changes with it. In the Corn Belt 200 or perhaps even 240 acres can now be handled as easily as 160 acres could 20 years ago. Such farms, however, are still family farms.

The very large farms, in terms of labor employed, are generally of the labor-intensive, specialty type. Illustrations are found in the large truck farms and fruit farms occurring along the Atlantic Seaboard, the cotton plantations of the Delta and the Black Belt, the fruit and the hop ranches of the Northwest, and the California vegetable or fruit ranches. Even in these cases it cannot be said that the large unit, employing many workers for short seasons, represent types of structure necessary for the production of the crops named. Rather, such units thrive where large numbers of workers are available for casual employment, and at relatively low wages. These farms involve the most serious social problems related to farm labor and should be given the closest attention.

Farm Wages and Hours

Have significant changes in working hours or in farm wages accompanied the shifts in farm structure? Obviously, a surplus of labor is available on farms and this makes for low wages. This is not merely a temporary situation, but is also a long time and normal one. The higher rate of population growth on farms is the source of the growth of cities. And since it is necessary to move the surplus population from rural to urban areas, a differential in wages is implied as a normal condition. This much we may take for granted. The present question is not merely whether there is a difference but whether the difference has been changing.

Some light may be thrown on the question by comparing monthly farm wages without board, with weekly factory earnings. Such a

comparison shows that in 1921-29 the average wage per month on farms was equal to factory wages for 1.72 weeks. By 1930-34 the ratio had declined to 1.52 and in 1935-39 to 1.47. There was probably a smaller percentage of unemployment on farms than in cities. Nevertheless, the decline in wages was relatively greater in the rural areas.⁷ It is well known that the output of farm products declines very little during years of depression; while demands shrink with consumer buying power. The attempt to force the usual volume of output onto an overburdened market, both depresses family earnings and lowers the incentive to hire labor at any but a nominal wage.

Between areas, farm wages tend to vary with the surplus of population and with the availability of other employment. Thus, in July 1940 average farm wages per month without board were reported by the Agricultural Marketing Service to be above \$50 in the New England, Mountain, and Pacific States, but below \$30 in the South Atlantic, East South Central, and West South Central States. Even though living costs are lower in the South than in Northern areas, the real wages which these figures represent are a scandal when viewed in comparison with the Nation's ability to produce.

Not only have farm wages run lower than urban wages, but hours per day have also run higher. The farm worker in northern areas continues to work something like 55 hours per week as an average for the year as compared to the 40 to 44 hours per week in other industries. It seems improbable that the decline in working hours on the farm since 1910 has been as great as one hour per day.⁸

Where mechanization has occurred, it is not uncommon for longer workdays to be reported during the critical crop-growing and harvesting seasons, since the tractors can work longer hours than the displaced horses. This, however, generally means fewer workdays per season. Where livestock production, particularly dairying,

⁷ See also M. T. Buchanan, *Farm and factory wages*, in *Farm Economics*, Cornell University, No. 121, Nov. 1940, pp. 3029-3036.

⁸ Data on hours per workday for 1936 were obtained in the National Research Project survey of 1936. These were confirmed by estimates of the Agricultural Marketing Service for Sept. 1, and Dec. 1, 1939, and March 1, 1940. Comparisons with earlier years are permitted by various State and Federal publications. See particularly U.S.D.A. Bul. 528, p. 8 (1917); New York State Dept. of Farms and Markets, Bul. 164, pp. 20, 28, 33; U.S.D.A. Yearbook of Agriculture, 1926, pp. 785-6; Missouri Bul. 125 (1915); Unpublished thesis at Univ. of Minn. by George A. Sallee; Illinois Farm Economics, Univ. of Ill. (April and May 1939) pp. 242-3.

has been expanding, the average number of hours a day has generally increased, particularly during the winter season.

The custom of working from dawn to dusk on the farm is a hard one to change. It is understandable on the family farm during years of low income when the farmer is straining to cover his fixed charges. On the other hand, an 8 instead of a ten or twelve hour work day would absorb a good part of the excess farm labor supply. And it is time that farmers as well as urban people were enjoying more of the leisure that our technological progress has made possible. Where a large part of the farm labor consists of hired workers as in California, or where nearby industrial areas compete for available workers, hours on the farm have declined more in line with urban hours. Industrial revival is likely to spread this benefit to the hired workers in other sections. Probably the family worker will follow in time.

Farm Structure, Farm Labor, and the National Economy

Agriculture cannot be considered by itself and apart from the rest of the National economy. Whatever suggestions we make for remedy of the position of the farm worker must be made in view of the fundamental changes occurring to an even greater degree in the rest of our economy. During the last 20 years productivity per man-hour has risen about twice as rapidly in manufacturing industries as on the farm. The progress of agriculture itself has released ever larger numbers of workers for employment (or unemployment) in cities. The urban economy has become more and more interdependent and in many ways brittle and easily thrown out of kilter. In the last decade the population that would normally move from farm to city has been held back to swell the already overabundant supply of farm labor and to contribute further to the growing production which farmers have been throwing on a shrunken and inelastic market. These two different phenomena, technological progress and slowing down or virtual suspension of the farm to city migration, have both contributed to increased production and to low farm income. The technological progress is the more spectacular and there has been a tendency to blame it for the combined results of both influences. Each, however, contributes to the same result, increasing the number of persons on farms who are looking for employment.

Urban as well as farm technology has affected the farm worker.

Improved highways, automobiles, and radios have put him in closer touch with the non-farm world, and have made the transition from farm to city life a shorter step. Furthermore, urban standards of life are rapidly becoming rural standards as well. But as yet the farm worker has received only a small share of the social and material gains that have gone to his city cousin.

The farm hired worker has been exempted from the benefits of most of the labor laws of the past few years including regulation of working hours, unemployment insurance, and old age pensions.⁹ That such protection is especially hard to apply in case of farm workers is undeniably true. But certainly there is no basis for such exemptions in social justice. On the family farm, where there may be only a single hired man who is employed only during busy seasons, protection by legislation is particularly difficult. Indeed, this type of worker is likely to be working under better conditions, though for no higher pay, than the worker on the large vegetable or fruit farm. For the latter, certainly the social security laws should be extended without delay. Unfortunately, such legal protection can only remove an undeserved discrimination. It cannot restore employment to displaced workers.

The family workers, who comprise the greater part of the partially employed farm people, provide us in many ways with an even more difficult problem than the hired workers. Here too we must consider the entire economy and not merely the farm.

Remedies and Policies

It should be noted that several principles and trends have been pointed out which give us means of testing policies and proposals for improving the conditions of farm workers, provided that the promotion of the general welfare is also desired. Among these principles and trends may be mentioned the rates and directions of technological change, the differential between rural and urban birth rates, the differential between rural and urban wages, and the inelasticity of demand for farm products. To have a reasonable chance of success, policies and programs must be drawn up in conformity with these principles and not in defiance of them. How do current policies stand up under these considerations?

It must be said that the prospects for relief from present govern-

⁹ See M. R. Benedict's very worthwhile article *The British program for farm labor*, *JOUR. FARM ECON.*, 22 (4): 714-728. Nov. 1940.

ment policies are not very inspiring. Important chronic elements have been pointed out in the existing maladjustments. The programs of the Agricultural Adjustment Administration and of the Farm Security Administration, on the other hand, have certain elements of impermanence about them and must be regarded as temporary measures only.

Agriculture can hardly look forward to a permanent subsidy by means of benefit payments. The rest of society may get tired of paying the bill; or even more dangerous, other industries may discover that they are entitled to similar treatment. The program of soil conservation, while a laudable one for that part of our agricultural plant that we really need to keep in permanent operation, does not touch the present economic problem. Indeed, for the next few years it threatens to aggravate that problem by increasing crop production from present acreage.

A policy often suggested of subdividing present farms in order to make room for more families on the land is probably the most mischievous from a long-run point of view. Increasing the labor input on our present (or an even larger) acreage could hardly help adding to the existing plethora of farm products. With an inelastic demand for these the clear implication is that not only prices per unit, but also total farm income would be reduced by such a plan. That is to say, a larger number of farmers would have to share a smaller total income. Present farm operators would do well to think this over.

Unless supported by a lasting subsidy, however, such a plan would not be likely to last so very long after industrial recovery set in. The proposal runs counter to many of the technological developments I have mentioned. These have increased the competitive advantage of the large farm and lowered that of the small farm. To obtain a satisfactory income, persons who had been settled on such semi-subsistence farms would either have to buy out their neighbors and build up economic operating units, or else sell their own holding and go into other industries.

At best, such a plan is an humanitarian scheme for the benefit of displaced persons who are never again to be incorporated fully into a revived general economy. As a mode of rural unemployment relief it has a limited applicability.

As an element in a long time program for a healthy economy, more is to be said for reducing our scale of agriculture somewhat,

and moving towards a smaller agricultural population. Under these conditions agriculture might be better able to maintain its own prosperity with less government subsidy. No doubt, a continued social control would still be required in order to coordinate agriculture with the rest of the economy. Increased interdependence between industries is implied by advances in technology; and at times the automatic market control devices on which we formerly depended fail to work.

In short, restoration of our farm workers to satisfactory earnings and living standards involves two definite steps: The first is the general restoration of economic health for the economy as a whole. Agricultural prosperity is not compatible with a depressed urban economy. Second, the excess population of the rural areas must be incorporated as productive workers in industries other than agriculture.

How is this shift of unused man power to be accomplished? As a general principle, persons who are shifted to other industries should receive definite training for their new work. Further, if they are to avoid the experience of being thrown as unskilled workers, into industries which are strange to them, they need as much of this training as they can get before the shift in occupation is attempted. It has been objected in the past that our rural schools educate people away from the farm. But if we have three or four million more people on farms than are needed there, might we not wisely extend the program of vocational education in Southern States, in the cut-over regions, even in the Pacific States, to train machinists, carpenters, or electricians? And might it not be wise to open such training to young adults as well as to youths?

Such industrial training, however, should certainly be paralleled by equally good vocational education in agriculture for the youths who are to remain on farms. Care should be taken that the next rural generation may not represent the dregs of the farm population. After all, an important function of the rural areas is to serve as the seedbed for future population. It might be pointed out, however, that the somewhat smaller but more prosperous agriculture envisioned above would offer greater inducement to the better grade of rural youths to remain on the farm.

A second remedy for which much is to be said is the encouragement of small or supplementary industries in rural towns. A somewhat similar idea of providing slack-season factory work for farmers

has not proven as easy as its advocates seemed to assume. Maximum economy in a factory requires that its capital be kept in constant use and not stand idle while the hands plant or reap a crop. Encouraging small, full-time industries to start up in small towns, however, has more to recommend it. But up to date this has accomplished but little toward relieving farm unemployment. There are still too many unemployed in the towns themselves for this remedy to help the farm districts very much.

It is possible that the defense boom may solve a large part of our present farm unemployment problem, once it gets into full swing. The resulting increase in industrial activity is likely to increase consumer purchasing power and strengthen prices for the present volume of most farm products, while the demand for men in factories and in the armed forces may remove a good part of the present excess of farm employables. The difficulty with this solution is that it must come to an end after the emergency. At that time we shall be fortunate if we can prevent the great number of employees in war industries and in related ones from becoming a new army of unemployed.

The more enduring question, as indicated above, is how can we maintain a sound and healthy economy. It is only in such a revived general economy that agriculture can return to its former role of providing raw materials in return for earnings comparable to those in other industries.

DISCUSSION BY OTIS E. MULLIKEN

United States Department of Agriculture

The customary chronological pattern of institutional developments especially governmental, affecting labor is for this country to lag behind other countries but eventually to follow their example. Professors Adams and Benedict have cited agricultural wage determination developments in England, Scotland, Sweden, Germany and Italy. They might also have included Mexico, Cuba, Argentina, Uruguay, Ireland, Hungary, Estonia, Australia and New Zealand. In addition we might observe the rapid increase in the development of governmental wage determination in industry in this country. Although the first state minimum wage legislation was passed as recently as 1912, this type of legislation now exists in 26 states, the District of Columbia, Alaska and Puerto Rico. The first federal legislation providing for establishing wages was passed in 1892 but it is only since 1930 that such legislation has been enacted on an extensive scale. In 1931 the Bacon-Davis Act establishing wage standards for employees engaged in government contract work was passed, in 1933 the NIRA pro-

vided for establishing wages on a nationwide scale, in 1934 the Jones-Costigan Act provided for establishing wage rates for sugar workers, in 1936 was enacted the Walsh-Healey Act which requires that persons receiving contracts of \$10,000 or over from the Government shall pay wages not less than the minimum determined by the Secretary of Labor to be the prevailing wage in the locality, and the Merchant Marine Act of 1936 gave the Maritime Commission power to establish minimum wage scales for seamen on ships being subsidized by the Government. Nineteen thirty-seven saw the passage of the Sugar Act of 1937 and in 1938 the Fair Labor Standards Act was enacted.

Possibly indicative of lines of developments affecting agricultural labor in this country are the Jones-Costigan Act of 1934 and the Sugar Act of 1937 which provide for the establishment of wages for sugar beet and sugarcane workers. The President in transmitting to the Congress a recommendation for the enactment of this sugar legislation stated: "It is also highly desirable to continue the policy which was inherent in the Jones-Costigan Act of effectuating the principle that an industry which desires the protection afforded by a quota system or a tariff should be expected to guarantee that it will be a good employer. I recommend, therefore that prevention of child labor and the payment of wages of not less than minimum standards be included among the conditions for receiving a federal payment." In the 1937 report of the Secretary of Agriculture in connection with a discussion of establishing minimum standards affecting the pay and working hours of agricultural labor, the statement is made: "It may be possible to include certain requirements in adjustment and agricultural conservation programs as a condition to the payment of benefits by the federal Government." Just this month the Secretary of Labor in a statement before the Special Committee of the House of Representatives Investigating Interstate Migration recommended the extension of wage and hour laws to industrialized agriculture and suggested that a device to secure labor standards for agricultural workers would be to make crop benefit payments to farmers conditional upon their observance of required labor standards. Whatever course developments may take it would seem incumbent upon those of us interested in American agriculture to be aware of the possibilities and to subject the problem to careful critical examination.

The authors of the paper just presented have suggested some of the peculiarities of agricultural laborers and the agricultural labor market as they affect the determination of agricultural wages. Further analysis of these peculiarities is a prerequisite to a consideration of the problem of the best method of wage determination for American agriculture. Among factors which might be considered in such an analysis are the general oversupply of agricultural labor and the reasons therefor, the lack of organization on the part of both employers and employees, especially the latter, the ignorance of market conditions on the part of both, the fluctuations in relative bargaining power of the parties, the elasticity of the demand for agricultural labor, the influence of the elasticity of substitution of machinery, the influence of the relative mobility of labor upon the possibilities of ex-

exploiting both laborers and farmers, the institutional relations of mutual dependence existing between farmers and farm laborers, the relation of hired labor to unpaid family labor, the relation of industrial employment and wages to agricultural employment and wages, the poverty and ignorance of farm laborers, the size of the entrepreneurial units, the heterogeneity of farm operations, and the existence of socially unassimilated groups of farm laborers.

In addition careful consideration should be given to the possible effects of wage regulations in agriculture from the viewpoint of farmers, laborers and the public. The influence of wage regulation on the supply of labor, the demand for labor, upon unemployment, the mobility of labor, the distribution of labor, including rural and urban migration, the efficiency of laborers and farmers the substitution of machinery, the organization of labor and collective bargaining should be examined. Possibly of major importance would be an analysis of the effects of wage regulation on import and export crops and on intercrop and interregional competition.

In discussing methods of wage determination Professors Adams and Benedict have tended to stress the virtues of voluntary action as effectuated through collective bargaining. While recognizing these virtues we must recognize that the extensive unionization of agricultural workers is improbable and that without unionization, effective and satisfactory collective bargaining of a truly voluntary character is impossible. This view has serious implications for the method of voluntary arbitration which the authors view with favor. In their discussion the authors stress the relation of wage determinations to strikes and peaceful employer-employee relations. This is not surprising in view of their interest in the California situation but it does result in neglecting other possibly more important social gains resulting from a system of wage regulation. Viewing foreign experience and present trends in this country it seems to me that the nature of the developments will be governmental rather than voluntary, and will be concerned primarily with social problems of income and status rather than with problems of employer-employee relations.

From this point of view I should like to comment briefly on the seven possible methods of wage determination suggested by the authors and on their observations with respect to several of these. Their "completely unorganized market" I dismiss with approval of their careful use of the descriptive term "unorganized" rather than "competitive." Collective bargaining, sharing the skepticism of the authors, I also dismiss despite acquaintance with a stable effective system of collective bargaining between organized producers and organized workers in the Puerto Rican sugar industry. Possibly as a sub-division of this classification should have been included the unilateral "bargaining" between organized employers and unorganized workers which, as the authors have noted, is not uncommon. Totalitarian systems may be hopefully rejected. The seventh method, "the reduction or elimination of wage labor in agriculture through farm sub-division" would not seem to be a method of wage determination.

There remain as suggested by the authors some type of official wage or arbitration board, direct legislative determination of wage rates and hours

and indirect regulation by government as under the Jones-Costigan Act. First, I should like to distinguish between official wage boards and arbitration boards and divide the latter into voluntary and compulsory boards.

Official wage boards can take many forms and exercise their functions in many diverse ways. The authors described with approval the wage boards established under the British Agricultural Wages Act of 1924. Nearer home we have wage boards established under state minimum wage legislation which exists in 29 jurisdictions. We also have industry committees operating under the Fair Labor Standards Act. In the past we have had code authorities under the NIRA. Time does not permit a critical comparison of these. I merely wish to point out that there has been extensive experience with the wage board form of organization in this country.

With the authors' appraisal of the possibilities of voluntary arbitration boards I cannot agree. Decisions of voluntary arbitration boards must, as most students of arbitration point out, rest on a recognition of existing power relations. Such awards would be of little value in an industry where bargaining power is on the whole so unevenly divided. In addition there are, among others, the familiar problems of the relative ability of the parties to present their cases before an arbitration board and the impartiality of the board members. The authors overlooked the superior promise of compulsory arbitration as practiced and applied to agriculture in Australia and New Zealand.

Direct legislative determination is generally condemned because of the inflexibility involved and the probable inability of legislators to determine an appropriate level of wages. It is too early to appraise the results of the Fair Labor Standards Act but it might be pointed out that the operation of industry committees within the statutory wage limits probably introduces an element of flexibility which overcomes this usual objection to such legislation. I would not view direct legislative determination as "essentially negative" nor do I believe it is necessary for workers to be organized to obtain such legislation, as witness the Jones-Costigan Act of 1934 and its successor the Sugar Act of 1937.

And in this connection I would like to take exception to classifying the Jones-Costigan Act of 1934, and by inference the Sugar Act of 1937, in the category of legislation establishing fixed wage rates. Under the Sugar Act of 1937 wages are not rigid. They may be established and varied according to certain standards. This form of wage determination by an executive officer—in this instance the Secretary of Agriculture—offers an interesting alternative to determination by semi-governmental boards and commissions such as the British Trade Boards and most of the state minimum wage boards. The Secretary of Labor under the Bacon-Davis and Walsh-Healey Acts establishes minimum wages as does the Maritime Commission under the provisions of Merchant Marine Act of 1936. The FSA also determines administratively the wage rates to be paid by its clients under certain circumstances. Time does not permit a detailed comparison of these two general methods, wage boards and wage determination by executive officers, which between them appear to offer the most promise as methods of wage determination in agriculture which would afford protection to

agricultural labor and possibly achieve some of the widely held hopes of ameliorating the social and economic position of agricultural labor. It is a problem requiring further examination.

So also is the question of the standards to be applied by any such board. Professors Adams and Benedict have presented some penetrating remarks on the use of an "ability to pay" principle although they neglected to point out what may be one of the most difficult practical problems—inadequate cost of production data. Further examination is also required of the standard of living and cost of living standards. Surprisingly no mention is made of the fair or prevailing wage standard so commonly used in this country.

I should like to conclude my remarks by suggesting a list of problems which would have to be faced by any board confronted with the task of determining wages in agriculture. The foremost of these, that of the standards to be applied is a subject in itself and has already been mentioned. Among other problems are the following:

1. The determination of a dividing line between agriculture and industry.
2. The determination of wages by crops or geographical areas.
3. The delimitation of geographical areas.
4. Deciding whether to determine individual wage rates on a crop or occupational basis.
5. Establishing grades of workers and differential rates for them including rates for women and children and sub-normal workers.
6. Allowing for seasonal employment.
7. Establishing piece rates.
8. Standardizing and evaluating perquisites.
9. Allowing for differences in cost of living and hence in real wages.
10. Allowing for inter-crop and inter-regional competition.
11. Establishing standard hours and conditions.
12. Providing for variability in farm income.
13. Seasonal variation in wage rates.
14. Overtime rates.
15. Administrative enforcement.

In conclusion may I express the opinion that Professors Adams and Benedict have presented a very significant and suggestive paper on the problem of wage determination in agriculture. As a pioneer paper in this field it has necessarily been suggestive rather than exhaustive and conclusive. It is to be hoped that it may be followed by other studies examining some of the many remaining phases of this problem. Some differences of viewpoint between Professors Adams and Benedict and myself have appeared but there is full agreement on the desirability of improving the position of agricultural labor and the need of further study to discover the best methods of effecting this improvement. In contrast to the skepticism of Professors Adams and Benedict I hold that the determination of agricultural wages under governmental auspices offers definite constructive possibilities of bettering the present status of agricultural laborers. It is not the only

method nor necessarily the best but it is one of the most feasible and probable.

DISCUSSION BY R. J. SAVILLE

Louisiana State University

Adjustments in agricultural labor as a factor of production, and as an inseparable part of the human resources of rural life, do not function smoothly at all times. They develop oscillations from serious maladjustment to one in apparent harmony with existing changes. In recent years there has been high pressure for adjustments—the results of slowly accumulating forces which were finally touched off by some unusual happenings in agriculture. Consequently, we have heard much about agricultural emergency and the plight of farmers and farm laborers. These important problems have been so crudely handled in many respects by social scientists that confusion rather than support has resulted. This is due largely to the severe limitations in data examined which investigators have employed in arriving at their startling facts. Sensational findings may receive greater applause when confusion exists than when more orderly planning and policy development is in progress.

The breadth to the point of view and to the field of inquiry in Professor Hopkin's paper seems to assure one that its preparation has been directed toward bringing out issues rather than toward convincing the reader of just what stand should be taken on them. Many pertinent facts are handled and related separately to the problem under study. How different this is from the rush of decisions which followed the AAA, for example, and laid to it the gross product of changes which had remained little noticed in their rise to a point of importance prior to that time. A word of caution might well have been added by Professor Hopkins that it will be necessary to relate the problem more closely to farming areas and individual farms for exact application of these more general conditions before much may be done about them with assurance.

Professor Hopkins segregates important forces which are changing the structure of agriculture—to a high degree simultaneously though not entirely associated—and relates their effects to the agricultural labor situation. These are offered in three important groups: (1) developments in farm technology—mechanization, varieties or breeds and rates of production, and technical market changes; (2) economic adjustments involving enterprise combinations, different rationing of the productive resources, population shifts, and perhaps, permanently new price relationships; and (3) physical phenomena, particularly droughts. Historical trends developed in the assembly of pertinent facts make it possible to weigh carefully conclusions in relation to the particular forces which most logically gave rise to them. This is precisely what social scientists dealing with agriculture need to do lest their work be termed comparable to that example in which each hunter in a party claims all the birds that fall even though everyone in the party fires at the covey at the same time.

I find little to disagree with in this paper insofar as the basic analysis

goes. Some aspects of the situation in the South may be pointed out for further mention.

Conditions influencing the number of persons employed should include especially the type of farm enterprises in terms of man labor requirements, and their adaptation to mechanized processes. Also, more emphasis might well be given to the relation of prices of farm products to the wages of farm laborers, and to the limitations of alternative employment. The labor situation in the Southeast, particularly, was greatly strengthened during the twenties by the addition of more intensive labor enterprises. For example, the rapid expansion of tobacco—a new enterprise on many farms, but one which had a high labor requirement—made the demand for labor step up sharply with little change in the rest of the farm organization. The same applies to strawberries, most truck crops, fruit production, and dairying; and may become a reality if forest products reach a more prominent place in the usual farm business. As these enterprises are expanded or added to existing farms there is need for more labor to handle them with little change in other physical conditions which might counterbalance their influence.

One important difficulty exists in measuring the results of these many forces in terms of number of workers as Hopkins has attempted to do, that is, the addition of more intensive operations on family farms may simply mean more employment for those persons already there with no change in the total number of persons needed. This is particularly important in an area like the Cotton Belt, where there is a large number of small units of operation. Many studies indicate that the introduction of labor-saving measures does not make the farmer feel that he should put in less time in the productive process, nor is there any reason to believe this is necessary or desirable. If anything, there is a tendency in the other direction—to accomplish relatively more provided the farm organization will permit it.

Professor Hopkins' paper lacks consistency at one point in the attack on the low wages being paid for farm labor in the South if one attaches significance to the earlier statement that "Wages of hired workers, . . . , are affected by the marginal productivity of labor on farms and by competing opportunities for employment in other industries." If wages in the South are in accord with marginal productivity then they must be nearly correct because the bargaining for labor is a highly competitive process although it may be of an alternative nature basis for those who have labor to offer. If, on the other hand, it is by comparison with urban wages that farm wages are to be judged, then the whole matter of rigid urban wages made possible by highly organized labor groups precludes any serious attack upon what might be man's productive capacity in agriculture because he has no freedom in competing for employment elsewhere. This particular point is the one deserving the most stress in any analysis of farm wages as a segment of the whole wage structure.

The emphasis placed upon present long days for farm workers and possible increased employment through shorter days is of itself not a very important issue because the year is a short one—the usual economy does

not give a wide spread to the working season. It is the yearly work and the yearly income for both rural and urban workers which needs to balance if a reasonable comparison is to be made. Only a very few systems of farming will even approximate a uniform distribution of farm labor requirements throughout the year so that it is practically out of the question to expect the two to ever be equal either in time or purchasing power. If the farmer fails to get in a large amount of work during the busiest season, his total yearly productive work will be greatly reduced. He is not so much in need of leisure time, but rather how to use more effectively that which he has now.

A supplement may be offered with respect to the labor situation in the delta and the Eastern cotton areas. Cotton production in the delta has had a very significant movement onto newly opened land which has been effective in offsetting reductions in the labor supply on plantations. In fact, the adjustment in labor on plantations has been more one of time worked than of number of workers, and even then the delta has been relatively less severe than the uplands. Significant indeed is the recognition by Hopkins of the sharp difference between the Western area and the rest of the South and the importance of the effects of mechanization and drought in bringing this change about. In fact, it has been these forces and agricultural shifts rather than AAA that have made the labor problem an important issue.

The solution offered and policies for agricultural labor which will improve the maladjustments are welcome at a time like this when the South has been bombarded by social welfare schemes which have had as their strongest point simply changing the persons in control with no reasonable answer to handling the technical difficulties. That the whole situation is beclouded by war issues and artificial government support is a most important matter, and it is necessary to deal with these as with what may be called normal tendencies. Farm workers and farm people want more of those things which characterize urban life. Also, there is every indication that their efforts will continue in this direction. Consequently, the most feasible answer seems quite logically supplied since rural workers prefer to shift their employment status to the production of industrial goods, if competitive conditions permit. It has been the adjustment in this very thing that has advanced the status of rural people most and the artificial check with its increasing resistance that now provides the greatest barrier to further adjustment in maximizing the productivity of farm laborers.

FUTURE OF COTTON IN THE ECONOMY OF THE SOUTH

O. C. STINE

Bureau of Agricultural Economics

We are confronted with an emergency cotton situation. At the beginning of the present marketing season there were on hand about 12,600,000 bales of American cotton from previous crops; and the new crop being harvested is expected to amount to about 12,500,000 running bales. With all this cotton, we are facing a curtailed foreign market. It now seems likely that the world will not consume more than 10 million bales of American cotton in the present marketing season and that we shall have at the end of the year the largest stock of American cotton ever accumulated. What are we to do with all this cotton?

Instead of stating the problem in terms of accumulated bales of cotton, I might state it in terms of a large number of farmers in the United States who find their foreign markets greatly curtailed and thereby their opportunities for earning incomes by producing cotton greatly reduced. And what shall we do with these farmers? We might profitably concentrate our discussion on dealing with this emergency, but I propose that we take a broad perspective of the cotton situation, and a long look ahead.

Cotton is an important factor in the economy of the South. It is important in the national economy. Nearly 2 million farms produce some cotton, and 10 million people live on these farms. Before the depression about one half of the cash income from farming in the principal cotton-growing States was from cotton, but it has been reduced to about one-third. Shall we undertake to rebuild the economy of the principal cotton-producing States, with a major dependence upon cotton for cash? I propose that we concentrate our attention rather upon building a better living on farms in these States. The question with reference to cotton then becomes: How much can we expect cotton to contribute and where can it make a significant contribution to net income and to better living on farms?

In considering the place of cotton in rebuilding the farm economy of the South, let us ask first of all how big a cotton market we can expect. In answering the question, how big, we must always concern ourselves with both the quantity that can be consumed and the price which consumers will pay. The question must also be an-

swered with due consideration as to the character of the market or markets—whether they are to be open competitive or closed monopolistic markets in which the producer or his agent may set the price. In the long history of cotton to date, we have operated primarily in a competitive world market, but with some degree of natural monopoly. In scanning the history, it may be observed that, even when the South was practically out of the world market, not very much cotton was produced elsewhere for that market. Until recently we could say truthfully that the South had the natural resources, the supply of labor, the intelligence, and the skill to compete freely with the rest of the world in producing cotton and have its supply practically determine the world market price. Looking around today it seems quite clear that we have lost much of that power. We have lost power of control by the development of substitutes for cotton. We have also lost it through the development of new areas of production. The old competitors, Egypt and India, have not contributed much to the breaking of this power. The new developments in South America, Africa, and China have marched in upon us; and a careful analysis of these new developments is likely to make clear that we cannot push them out. They are here to stay. This is true of both the substitutes and the new cotton-producing areas.

The new developments in substitutes have behind them the marching force of scientific progress and the economic pressure of countries not producing cotton to find in their domestic economy a substitute for a textile for which they have been continuously dependent upon foreign sources of supply. The new developments of production in South America and Africa have behind them pressure of growing populations seeking the best opportunity for their efforts, and finding nothing better to do than to grow cotton.

In spite of the development of substitutes, the world consumption of cotton has been increasing. At the beginning of the previous World War the world was consuming about 20 million bales of cotton. The war curtailed consumption but it recovered to this level by 1923. The very large crop produced in this country in 1926, accompanied by lower prices, stimulated consumption. After some recession, consumption again stepped up, reaching a peak of about 30 million bales for the 1936 season. Undoubtedly the world has still greater consuming capacity, but can we expect cotton to continue to expand in the face of the increasing production of substitutes?

Can we expect American cotton to recover or advance its position in world consumption?

Prices

What price can American cotton producers expect to obtain in the competitive foreign market? The increase in world consumption in recent years has been accompanied by a material reduction in prices. In 1923 when world consumption had recovered to the pre-war level, the farm price of cotton in the United States was about 29 cents per pound, as compared with the pre-war average of 12.5 cents. The average price in 1923 was higher than the pre-war average, by more than the advance in the general price level, thus indicating that the demand for American cotton in 1923 was higher than the pre-war demand. In the 1936 season, on the other hand, the farm price of cotton in the United States was back to about the pre-war level (12.3 cents); and this is considerably below the pre-war purchasing power of the price of cotton. The 1923 farm price would be equivalent to 25 cents per pound in 1936. It is thus apparent that the high consumption in 1930 was reached as a result of a great decline in price and it does not indicate a great expansion in the demand for cotton. Since that season we have seen a reduction in price and in consumption. Thus it is now apparent that 1936 marked a peak in a world-wide recovery from the depression, and that this high level of consumption probably could not be maintained even at present prices.

An important point to note in this connection is that, whereas American cotton made the great contribution to the expansion of world supplies and world consumption between 1923 and 1926, and provided the major part of the raw materials for that consumption, the additional height reached in 1930 was primarily from foreign cotton.

The great decline in cotton prices in the depression did not of itself check production. The productions of both domestic and foreign cotton in 1932 were large and world consumption was large. In spite of low prices, foreign production increased sharply in the following years. Production in the United States was curtailed until 1936 when the abandonment of the production control program, together with high yields, produced another large crop to be marketed along with a very large foreign production. It is important to note that in every year since 1932 the production of foreign cotton has exceeded

that of American cotton. It is now obvious that foreign production can not be turned back, even at the present relatively low level of cotton prices.

Now let us turn to a consideration of substitutes. Under world conditions many countries have greater incentive than before to develop the use of substitutes for cotton. Substitutes did not begin to be important until after 1923. In the meantime there had been great technical advances, resulting in a greatly increased volume of production and lower prices. What can we expect after the war? Further improvement in techniques and lower prices.

Moving the Accumulated Surplus

Before turning to a discussion of the domestic market, let us examine briefly the possibility of moving some of the accumulated surplus of American cotton after the present war. Undoubtedly there will be at the end of this war, as there was at the end of the previous World War, an accumulated demand for more textiles. Foreign countries will take more American cotton, provided we will give or sell on credit to countries that have been engaged in the war. But how much? Reviewing the previous war experience, it will be observed that exports recovered to some extent after the war. The cotton situation in the United States, however, was materially affected by the boll weevil. The inroads of that pest contributed materially to a curtailment of production, and were a factor in preventing a great accumulation of American cotton in that war period. Furthermore, when the world market opened again there was room for the American cotton to return to its accustomed share in the world market. Now we are faced with the development of substitutes and with a production of foreign cotton exceeding American. After we have moved some of the accumulated surplus, we shall find substitutes and foreign cotton occupying such a large share of the market that there will be little room left to American cotton on a competitive basis.

The Domestic Market

What are the prospects in the domestic market? The first striking fact to be noticed is that cotton consumption in the United States has not expanded as it has in foreign countries. In spite of increasing uses in industry, the per capita consumption of cotton in the United States is now only about as great as it was at the outbreak of the

previous World War. Consumption here reached a high level in 1936 but this was a peak in a cycle and, per capita, was not significantly different from previous high peaks of cycles.

The United States consumed a large amount of cotton last year, and it is consuming more this year. It is estimated that something more than $8\frac{1}{2}$ million bales may be consumed in the United States this season. This represents a great increase in consumption over most recent years and seems to be due to a number of developments. Some foreign manufacturers are too much occupied to manufacture for export, or are finding it difficult to ship goods to some of their distant foreign markets; and those markets are turning to us for goods. Defense purchases call for the manufacture of more cotton goods. The Stamp Plan, the Mattress Plan, the Cotton Products Export Program, and increased purchasing power of consumers are all contributing to some increase in consumption of cotton in the 1940-41 season. We now have organized efforts to expand consumption along many lines, but substitutes are developing even in this country and there is a limit not very far distant to the possible use of textiles as clothing. Perhaps we can develop a much larger volume of industrial use.

In the domestic market as well as in the foreign market we must consider the price. We have demonstrated that we can fix the price of cotton in the United States, but can we continue to fix the price without regard to the supplies of cotton that will be used? Undoubtedly the domestic demand for cotton is rather inelastic within limits. We know that increasing prices tend to curtail consumption. Could we raise the price in the domestic market to 16 cents per pound without significantly affecting the consumption of American cotton in the domestic market? In the first place, we should not overlook the fact that it would be necessary to place a tariff on medium and short staples or otherwise restrict imports to protect the domestic market. Furthermore, the higher price undoubtedly would tend to encourage the use of substitute textiles. The immediate effect upon consumption, in the face of special efforts to expand consumption, might be only a small reduction. The important question from the viewpoint of the cotton producer is whether or not in the long run the higher price level would have such a strong tendency to encourage substitution that the consumption of cotton would be reduced in favor of the use of other textiles. It is obvious that we still have monopolistic power over the domestic market. The impor-

tant question is, within what limits that power should be exercised with due consideration to the future place of cotton in the textile market.

The Place of Cotton in the Farm Economy

With this prospect, let us look at the problems of the individual cotton producers. In the first place, it seems obvious from every viewpoint that cotton producers in the South must look for opportunities for establishing a better foundation for farm income and for family living than they have had in the past. For many years we have talked about cotton being king; but most of the kings of the world have been deposed or have been set aside so that they no longer dominate the people over whom they have ruled. And this figure of speech is applicable to cotton. It is true that cotton has been and still is the greatest cash crop in many of the cotton States. A large percentage of farmers in many of these cotton-growing States are dependent primarily upon cotton for their cash income. During the past few years they have suffered greatly on account of reduction in income from cotton. Let me make the assertion that it ought to be obvious now that the emergency of the great depression was not just a temporary emergency. As indicated above, the natural monopoly opportunity for producing cotton has been greatly reduced. The reduction in acreage and production has been required by circumstances, and a further reduction may be required. The lack of opportunity for producing another great cash crop in the South has often been considered an insuperable difficulty. Let us suppose for a moment that this is not accepted, and consider what are the alternatives.

Diversity of production has long been advocated for the South, but without significant results. Nevertheless, in looking back over the history of the South, it may be observed that when the price of cotton is greatly depressed some farmers seem to find something else to do. It looks as if many of them, however, simply loafed for a while and came back. Undoubtedly some were lost in the emergency, while others simply rested. The question may be raised now as to when and whether there is an opportunity to come back. The argument for diversity has been largely for increasing security, and that is a good reason. But perhaps we could also realize greater net incomes and a better living per family by well planned diversity. It now seems rather obvious that we must build a new farm structure

in the South—with cotton having a place in it, but with greater dependence upon other products.

Living conditions in the South are often cited as being the lowest in the country, and, of course, too low. Improving living conditions in the South is for many reasons a major duty of the country as a whole. I hesitate to speak of the South as the nation's greatest problem. One might say equally appropriately that it is the nation's greatest opportunity. We have here the greatest opportunity for doing something to improve the well-being and increase the strength of the nation.

Looking over the past few years, it seems obvious that something has been accomplished toward reorganization in the direction of developing better living conditions and more secure sources of income for the farm families of the South. Looking around we can see what I believe to be the basis for permanent improvement. Some of the obvious developments in this direction are increasing income from livestock and livestock products, reduction of expenditures for food and feed so as to increase the net income from farm production, and increasing production for home use. The increasing production of livestock seems now to be accompanied by a movement, more substantial than ever before, toward the production of feeds. This will, of course, broaden the income base and reduce for the farm as a whole the costs of producing cash crops, while at the same time lessening the dependence upon those cash crops.

In order to make the tendencies now apparent carry through, to establish a more substantial and sounder basis for Southern agriculture, the several programs now in operation should be more closely coordinated and worked out on a long-time basis. The extension of scientific knowledge as to how to produce and how to market must reach the lowest level of producers. The lowest ranks of producers must be lifted to a higher level of intelligence in production and to a higher level of living. To them must be extended opportunities for improving their stock and equipment. Furthermore the lowest level of producers must have greater security of tenure and learn how to use it.

The statement is frequently made that there are now too many people trying to earn a living from agriculture in the South. The conclusion is drawn from this that, in order to improve conditions materially, some of these people must be withdrawn from farms. Perhaps there is sufficient truth in this statement to warrant some

consideration, but I believe that it is often used to blind the observer against other opportunities for improving conditions in the South. It seems rather obvious that all the people living in the South could live better by planning to make a fuller use of the opportunities at hand. It seems to me possible to raise materially the net income to all of those now engaged in agriculture in the South. The development of opportunities for employment outside of agriculture, however, should be encouraged as an aid to providing greater opportunity for those who remain in agriculture. The defense program is providing an opportunity for the escape of many from farms. Recruiting for service, the placing of cantonments, and the expansion of industry—all three offer opportunities for withdrawing manpower from the farms of the South. Such withdrawals improve the opportunity for making readjustments by establishing more economic units for production; but I would like to emphasize what I think to be a fact, that not the only—and not even the chief—opportunity lies in simply enlarging the units of production. Another point to register is that after the period of increasing defense expenditures and war efforts comes to an end, we should not be in a position of returning manpower to the farms and finding those farms as weak for support as they were when the men left them.

A review of the past few years gives an impression that some significant shifts are under way. It is, of course, difficult to find a market for more farm products of any kind. However, the growth of the country and increased industrial activity are gradually providing a market at home for more of some products. The available data indicate considerable improvement in production of livestock and minor crops in recent years. The fact that income from livestock and fruits and vegetables in these Southern cotton-growing States in 1939 was not very far from what it was in 1929, whereas the income from cotton was away down, is noteworthy in this connection. The State of North Carolina has recovered from the great depression. Possibly not all of the scars have been healed, but the real income in North Carolina is now apparently greater than it was before the great depression—and this in spite of material curtailment in cotton production and in income from cotton. An increasing diversity of income has contributed to the building up of volume and stability for that State. By contrast it may be observed that States highly specialized in cotton are still suffering greatly from the depression. Referring to Mississippi as an example, the agricultural

program, with its millions of dollars added to income from sales of crops, has not restored the agricultural income of that State to anywhere near the pre-depression level. That State is still primarily dependent upon cotton for income, and that income (including lint and seed) has been reduced to less than half of what it was in 1929. The income from livestock, however, has been maintained and is now about as great as it was then.

We have in Mississippi, however, a good case for study in adjustments. The organized staple cotton growers of Mississippi provide some interesting data as to what has happened in the Delta region. Statistical data relating to 12 counties in Mississippi present the following record:

The cotton area was reduced from 1,700,000 acres in 1930 to 1,500,000 in 1933, and to 1,000,000 acres in 1938. Yields increased from around 200 pounds to about 400 pounds per acre, so that production actually increased with the reduction in acreage. In 1933 the harvest amounted to 581,000 bales—about the same as in 1930—and in 1938 was 835,000 bales. More important—there had been a fundamental change in the agriculture of this region. One indication of this is the change in feed purchases. The records indicate that in 1930 more than 8,000 cars of feed were brought into the area. At the bottom of the depression in 1933, nearly a thousand cars were brought in. In 1939 feed purchases had declined to less than 200 cars; and in 1940 the record shows that these counties have become a surplus feed-producing area. Back of the increase in yields and the reduction in purchases of feeds is a record of increased seeding of legumes. In 1930 there were practically no legumes. By 1938 about three-fourths of the cotton acreage was planted to some kind of legume, in rotation with cotton and corn. The number of livestock in the area has increased, and the livestock are being fed out of home production. Improved nutrition is indicated by the fact that the number of deaths on account of pellagra has declined from around 200 in the years before the depression, to less than 100 in recent years. It seems clear from this record that, while the income from the sales of cotton is not now equal to 1929, on account of the great decline in price, the net income of the community is probably greater.

The developments in North Carolina and in the Mississippi Delta show the way out from continuing to produce large quantities of surplus cotton and of depending upon the maintenance of a rela-

tively high price for cotton for income to farmers in the South. The solution of the cotton problem and of establishing a better living on farms in the South lies in both directions, namely, finding alternative opportunities for income, and reducing costs so that net incomes can be increased.

DISCUSSION BY G. H. AULL

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Any crop so economically important to such a large group of people for such a long time as cotton will require more than a first class funeral before it is finally "laid out." Cotton has been in difficulty before and as for the southern cotton grower, he has never had more than a fleeting glimpse of that myth called prosperity which, somehow, he has always found just around the world instead of just around the corner.

According to the diary of one Hooker who visited in upper South Carolina in 1803, General Andrew Pickens, famous Revolutionary soldier, mediator and farmer was at that time trying to get away from the production of "too much cotton." Nearly fifty years ago, a publication of the South Carolina Agricultural Experiment Station was introduced with the statement that "In consequence of the low price of cotton, farmers are anxious to engage in some line of production that promises more remuneration." This statement was repeated in the 39th annual report of the South Carolina Experiment Station in 1926 (fourteen years ago), when, after harvesting 18 million bales from 46 million acres, farmers were faced with the prospect of a "new low price" of around \$0.15 a pound. We exported that year, however, nearly 11 million bales (which proved to be somewhat of a record) and, after reducing acreage by 6.3 million (acres) in 1927, we came back in 1928, 1929, and 1930 with an acreage almost equal to that in 1926. Actually, it was greater in eight eastern cotton belt states.

There never was a time when farmers were not anxious to engage in some line of production that promised "more remuneration" and they will always vote for the candidate who promises to get it for them. They have, however, confused "remuneration" with "well being" and quite generally have failed to make a distinction between real and monetary income. This, perhaps, explains their almost fetish devotion to the Great White God—Cotton, which is not an unexpected result of numerous efforts to solve the farm problem by increasing the price of what farmers sell rather than reducing the price of what farmers buy. Under a system of this kind, a certain amount of "remuneration," "coin of the realm," or other "hard money" appears to be essential. Cotton, more than any other crop, has supplied that need and the indications are that it will continue to do so in the future.

The system has not worked so badly for a considerable group of commercial farmers, but by it a great majority of farm families, ill prepared for the struggle, have been brought to that widely publicized condition characterized by the words "ill fed, ill clothed, and ill housed." The

remedy, fortunately, is not beyond their reach and during the years ahead increasingly large numbers of them will be found digging their living from the land in the manner practiced by their pioneer ancestors. Admittedly it will be a poor living and it may not be the best way, but at any rate it will not be subject to the influence of racketeers, profiteers, and plain hi-jackers.

Then, if there is any land left over—and there will be—they'll grow cotton; sometimes much, sometimes little, depending upon the weather and the price. There isn't much else to do. In spite of low prices for lint and relatively high costs of production, there is not now any suitable crop of major importance except tobacco which will produce an income comparable to that received from cotton. The crop land per capita of the farm population in the principal cotton states is only about six acres and in some of them it is certainly less. Until and unless some very drastic shifts occur in the population, the fleecy staple will continue as a principal contender for these scanty acres and nothing less than the primary demands for food, clothing and shelter will offer serious competition. These demands, let it be noted, are now far from satisfied and other sections have little to fear as a result of efforts on the part of the South to become more self-sufficient. Nearly a million farm families in the South are without a hog, three-fourths of a million have no milk cow and a third of a million do not even own a chicken. If these families constituted an actual or even a potential market for pork, milk, butter, poultry and eggs produced elsewhere it is easy to see that emphasis upon a "live at home" program might have serious repercussions. This, however, is not the case. For the most part they have no money—only a surplus of under-nourished labor. If this labor can somehow be employed to produce the much needed essentials of health, comfort and decency, the family will at least be assured of a living from the land which is superior to what many have received in their frantic efforts to get more.

It has been suggested that the rank and file of southern farm families will continue to rely upon cotton as a principal cash crop. This is not the same thing as saying that southern families will continue to rely upon farming as a means of earning a livelihood. Naturally a great many of them will, but the continued expansion and development of a multiplicity of industries in the South may be depended upon to provide employment for an increasingly large number and percentage of southern people.

The trend in this direction is already well under way. For example, according to the United States Census of Manufactures, more than half of the total increase in industrial wage earners in the United States between 1927 and 1937 represented increased employment in southern industry. The percentage gain was relatively 2.5 times greater in the South—7.18 as compared with 2.82. The influence of this development upon the agriculture of the region is not difficult to imagine. Not only will it absorb some of the surplus population from the farm but it will provide new opportunities for cash to those who find themselves disadvantaged in the production of cotton.

An expansion of "home" industry is likewise to be expected. This may

not result from choice but from necessity. Farmers cannot be expected always to sell their own labor at ten cents per hour in the form of cotton and to purchase the labor of someone else at forty cents per hour in the form of shirts.

Anything which will reduce the expenses necessary to life on the farm and increase the opportunities for employment elsewhere, will be an aid to agriculture. The same is true of anything which serves to increase the efficiency of production on the farm.

Perhaps the greatest contribution which has been made to southern agriculture by the Triple A program is to be found in the increased yields resulting from planting on better land and cultivating according to improved methods. Triple A regulations, however, have not permitted a full realization of the possibilities in this direction. For example, by making a cotton allotment to land on the basis of its previous history and by requiring the land to be planted to cotton as the price for maintaining the allotment, much land unsuited to the production of cotton has been planted to it while—on other farms—a great deal of excellent cotton land has been devoted to less intensive use or even remained idle. It is suggested that some provision be worked out whereby those farmers with soil ideally suited to the economical production of cotton may contract with other farmers in the area to grow the amount to which they would be entitled on the basis of normal yield and allotted acreage. While this sort of scheme might be carried to an extreme there does not appear to be any logical reason why all of the cotton allotted to a county, for example, should not be grown on land best suited to its production without in any way infringing upon the present rights of owners, tenants or croppers. Furthermore, if restrictions are to be placed upon the right of an individual to produce—and it appears that this is necessary—it would seem also that restrictions might be placed upon the area in which production is permissible. Except for the purpose of protecting the present occupant, there is no object in subsidizing the production of a crop and maintaining a false value on land which otherwise would be forced into a different use. This is especially true when there seems to be no particularly strong demand for the product of the crop. Unquestionably the ability of the South to produce cotton at a profit and to supply at least a part of the world demand will be tremendously enhanced by a long range policy which looks at the entire area rather than that circumscribed by a single legal boundary.

This suggests a final word with respect to what appears to be a universal failure to distinguish between programs designed to aid agriculture and those which fall within the category of general public welfare. The future of cotton in the economy of the South depends not only upon the policies which may be adopted for the benefit of agriculture (and particularly cotton) but also upon broad national policies with respect to industry, labor, and international trade.

Present programs with respect to agriculture seem to involve a mixture of several things not clearly differentiated or defined and sometimes even in conflict.

(a) In the first place they are a part of a general program of human welfare designed to relieve suffering and to prevent further increases in industrial and urban unemployment and unrest.

(b) Secondly, they aim to restore and maintain natural resources so as to insure their availability and use to present and future generations.

(c) A third aim appears to be the attainment of "parity" for agriculture without necessary regard for the individual farmer.

(d) Finally, there is the worthy objective of raising the standard of living among numerous farm families who now lack the requisites for comfort and decency.

In the past families have seemingly been inextricably entwined with cotton in the economy of the South but it is altogether unlikely that this relationship will continue in the future. On the other hand, there is every reason to believe that (given a fair chance and reasonable protection from the exploitation of other groups) the best southern farmers using the most efficient southern practices and methods on the best southern soils can produce a class of cotton which will compete with that grown by anyone anywhere.

DISCUSSION BY C. A. BONNEN

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I have been asked to direct my discussion to that phase of Dr. Stine's paper which deals with the question of alternatives to cotton production. This is a question that has perplexed several generations of farmers and farm leaders in the South. Recent economic upheavals have merely accentuated the problem. One has only to consult the files of old newspapers and magazines reflecting thought in the South to learn the truth of this statement. Furthermore, the agricultural extension services in the South have worked with farmers for thirty years with the purpose of finding alternative enterprises which could be successfully substituted for cotton.

Dr. Stine has painted an extremely dark picture of the demand situation for American cotton. He apparently sees little chance of cotton farmers retaining or recapturing more than a small portion of the world trade in cotton. This seems to imply the assumption of a continuation of foreign trade policies which most southern people believe are largely responsible for the present cotton situation. From this point of view, the outlook for cotton is indeed dark, and the problem of finding alternative opportunities is a sizeable one.

Assuming little or no foreign market for American cotton, what are the alternatives? I agree with Dr. Stine that increased industrial activity in the South will provide opportunities for some of the unemployed and underemployed people on farms. Industrialization is a two-edged sword which would cut both ways on this problem; providing employment directly through jobs in factories and related services, and indirectly on farms by reason of increased demand for such farm products as dairy and poultry products and fresh fruits and vegetables. Broadly considered, it would seem that the only thing that can save the rural South from de-

population or a wretched level of subsistence is sufficient industrial development to absorb a large portion of its surplus population. Much has been said about the placing of industries in the overpopulated rural areas of the South, especially since the initiation of the defense program. It is too early to evaluate these efforts properly. There is little indication at this time, however, that more than a few crumbs from the loaf will fall west of the Appalachians and south of the Mason and Dixon Line. Furthermore, judging from past experience, industries based on wartime activities are largely temporary and usually create more problems than they solve. It is our belief that other defense activities, such as the building and servicing of training camps and airports, as well as military training itself, will provide more opportunity for employment in the South than will the industries engaged in the manufacture of war materials. Here again the temporary nature of these activities tends to cool our enthusiasm for this source of relief.

Turning to the question of peacetime industries, we feel that much wishful thinking underlies the belief that such industries will be developed in the South at a sufficiently rapid rate to offer much relief to surplus populations. The obstacles which in the past have tended to keep industries out of the South, and particularly the middle South and Southwest, continue to operate. Shortage of local capital, discriminatory freight rates, lack of skilled labor, and particularly the monopolistic practices of existing industries, are resistances to industrialization which are difficult to overcome, despite the existence of liberal supplies of raw materials and labor. To be honest with ourselves, we must face the fact that the same forces which have operated to give us our foreign trade policies are also operating to restrict domestic competition. The South faces this dilemma, whether it chooses to fight to retain a substantial portion of the foreign market for cotton or attempts to develop industries.

Looking at the alternatives within agriculture, we see no enterprise which promises to fill more than a small part of the gap left by the loss of the cotton market. Aside from a few new crops, such as flax and Tung oil, which are still more or less in the experimental stage, the alternatives are largely enterprises which have in the past been weak competitors of cotton. These enterprises for the most part require much less labor than cotton and also provide less income from a given area of land. The exceptions, of course, are certain fruits and vegetable crops, many of which have higher labor demands than cotton. Past experience, however, indicates the ease with which existing markets are overtaxed by comparatively small increases in the acreages of these crops. In the final analysis, the bulk of cotton producers must devote their labor largely to the production of the more staple commodities, such as feed crops and livestock and livestock products.

Observation of adjustments being made in the Southwest bears out this conclusion. Most of the adjustments are in the direction of a more extensive use of land. The reduced cotton acreage is being supplemented by increased acreages of grain sorghums, corn, coarse forage, annual pastures and fallow, all of which use sparingly of labor. Some farmers are expand-

ing or adding livestock enterprises, in many cases beef cattle. Simultaneously have come substantial increases in the efficiency of labor, owing to the rapidly increasing use of mechanical power and large machinery units. The net effect is seen in fewer and larger farms and in substantial decreases in rural farm population. These adjustments have come rather easily on those farms which were large enough to permit internal reorganization. The typically small cotton farms are finding it difficult to retreat to less intensive systems of farming. This is especially true where insecure tenure complicates the problem. Consequently, many are being combined or absorbed into larger units. In a typical west Texas county, 592 farms were combined into 268 operating units between 1937 and 1938. In a comparatively small blackland county in Texas the total population decreased approximately 6,500 between 1930 and 1940. Other counties had comparable decreases. It is generally conceded that all of this decrease and more was in the farm population. A further examination of the Mississippi Delta situation described by Dr. Stine would undoubtedly reveal items of savings resulting from internal reorganization equally as important as were the savings in feed costs and perhaps somewhat similar in nature to those described above.

Dr. Stine has given us little encouragement regarding the export of cotton. I seem to have been equally pessimistic regarding the various alternatives to cotton production. Perhaps we are both wrong. It seems clear, however, that the basis of the cotton problem is something more than the loss of the foreign market. It seems clear, also, that the agriculture of the South cannot be reorganized, on the basis of present alternatives, to support the present farm population at a reasonable level of living. A greater degree of industrialization is needed to provide employment for the surplus population. Without industrialization, large numbers of southern people must migrate or submit to degradingly low levels of living. It has been demonstrated in recent years that they will migrate when conditions at home become unbearable. These migrations seem to have brought a realization to many people outside of the Cotton Belt that the cotton problem has serious aspects so far as they are concerned and that it is of national significance rather than strictly regional. This is perhaps the most hopeful sign on the horizon. It remains to be seen, however, whether this country is ready to make such changes in its economic policies as will permit the South to develop such industries as are needed to employ its own people at a decent level of living.

DISCUSSION BY CLAUDIUS T. MURCHISON

The Cotton-Textile Institute

Although our cotton problem is extremely grave from the viewpoint of the Government, the cotton farmer, and in its relationship to our entire national economy, its ultimate solution can be found only through increased domestic consumption. All other solutions which are currently being proposed create new evils far worse than those which they are de-

signed to remedy. The cotton textile industry, therefore, believes that the time is not yet opportune to surrender those basic features of our cotton control policy which have proved so invaluable to the farmer during the past few years.

In this time of high national tension when the interests of the entire country are concentrated upon the new and exacting problems of National Defense, it would not seem to be the part of wisdom for the cotton farmer to endanger his existing security by recourse to new and drastic experiments in legislation. There would be an equally great danger in permitting any substantial departure from the policies lately followed in the administration of existing farm legislation as it applies to cotton.

The huge cotton surplus can of course be made to look very terrifying and no one is desirous of having it long continued. But this surplus is no bigger than it was two years ago. Moreover, it has not come about through any chronic conditions in our economy, but is for the most part the result of fortuitous and transitory circumstance. On the 1936-37 crop no acreage control program was imposed. That fact, together with a good growing season, occasioned a crop of about eighteen and one-half million bales which was about six million bales in excess of the restricted crops which have come to be regarded as normal since 1934. Consequently, virtually one-half of the present surplus which occasions alarm has its origin in the temporary and unique circumstances of a single year.

Twenty-five per cent of the surplus—that part which is going into storage this year—is due entirely to the military activities which were started by Mr. Hitler, and which we hope will be transitory. Most of the remaining twenty-five per cent is not surplus in a true sense, but has gone into storage because of the excellent loan facilities of the Government rather than remain in the hands of private holders as it would have in the older days under the classification of normal carry over.

All of these causes are transient, episodic, and probably non-recurring. The most important one spent itself completely two years ago. To be termed equally important as a cause for the surplus the present war will have to last at least until August, 1942. Hence, if we grant full weight to our cotton export loss for the current crop year and for the next, it does not, taken alone, create a surplus problem so serious as to justify at this time a wholesale attack upon the entire groundwork of our agricultural policy.

The right place for an attack is upon the cotton surplus itself. So long as it is encased in steel bands and jute wrappings it is of no value to anyone. The only constructive fact about this surplus is that it needs to be used. It is crying aloud to be manufactured, into finished goods for distribution to the one hundred and thirty million American people who need it, and want it, and have the means to pay for it. This can be accomplished if we will stop thinking of cotton as a farm product alone, and regard it as an item of consumption.

As cotton is nurtured in the fields, so it must be nurtured in the factories and in the channels of merchandising. As cotton is protected for the sake of farm income, so must it be protected for the sake of consumer utilization.

Cotton cannot continue to be vital to one group unless it is made vital to all groups.

Until recently there was no need to express such sentiment. During the many generations when cotton was supreme in America we merely took cotton for granted. This long neglect of conscious effort to expand and to strengthen the usefulness of cotton as an article of consumption is the fundamental explanation of the present-day plight of the cotton farmer.

But happily, this long neglect has its bright side. It now enables us to approach cotton with a new appreciation of its manifold virtues and of its significance in our economy, and with a feeling that we are making a new discovery. Coincident with this mental rediscovery, there is in progress a vast number of technical discoveries of which we have not previously dreamed, and another vast array of discoveries in the field of merchandising, and industrial utilization. At this very moment we can feel the upsurge in the well-being of cotton occasioned by these new developments.

In the first and darker half of the decade which lies behind us the trend of cotton consumption was sharply downward with no prospect of a reversal of trend. Synthetic fibers and other substitutes for cotton were growing in popular appreciation. The future of cotton was viewed by everyone with the gloomiest foreboding.

But there were those who were unwilling to accept defeat without a struggle. They developed and put into operation practical and scientific methods of cotton promotion, enlisted an ever widening public interest, and now their numbers have grown into a great army whose activities extend far beyond the boundaries of cotton culture or cotton manufacturing. The results speak for themselves.

Five years ago the industry was resigned to an annual domestic consumption of six and one-half million bales or less. In 1939 the industry consumed seven and three-quarter million bales. In 1940 consumption will touch eight million bales. In the crop year ending August, 1941, there is a likelihood that we shall exceed eight and three-quarter million bales.

It is important to note that this upsurge in cotton consumption had reached imposing levels before the outbreak of the European war, and had reached new high records prior to the launching of our National Defense Program. It appears to be built on a foundation of increasing civilian demand, and is attaining new heights irrespective of wars and rumors of wars. In the advancement of this effort lies the only solution of the American cotton problem.

The rapidly-mounting trend of domestic cotton consumption should, for at least another year, preclude any thought of substantial acreage reduction under legislative authority. As a gesture of economy, acreage curtailment would have doubtful value. It would certainly call for increased benefit payments to the farmers to compensate for the idle acreage. It would still further intensify the problem of agricultural unemployment. Agricultural labor would be forced in greater numbers to WPA projects and other forms of public relief. There would be the additional social problems attendant upon the uprooting and transfer of considerable groups of our rural population.

The only visible offset on the side of economy would be a reduction in the volume of commodity credit corporation loans necessary to finance the cotton surplus. Inasmuch as these loans are the product of banking operations, most of them private, they represent no immediate drain upon the taxpayers, and should ultimately be recoverable provided the loan rate is kept within the bounds of commercial prudence. But the contingency of loss from sound banking operations is a far less serious alternative to face at this time than the certainty of heavy social and financial loss which attaches to the first alternative.

The rising trend of domestic consumption likewise renders illogical and unreasonable a current proposal that the Government loan rate be substantially increased, perhaps to an approximation of parity price. It is to be supposed that the price of cotton will automatically rise by an amount equal to the loan increase. Such an abrupt and violent change in the market valuation of cotton would destroy all customary price relationships with competing products, and at once precipitate a sharp reduction in the industrial uses of cotton.

In the absence of a general price increase in all consumer goods it would likewise discourage the sale of apparel goods, and cotton furnishings for the home. Thus, while a loan policy of this type would appear to be the simplest and easiest way to administer the financing of the cotton control program, this advantage is more than offset by the certainty of diminished cotton consumption, and the eventual impoverishment of cotton agriculture. Consequently, such a procedure should not be entertained, except in the event of general inflation which would produce an upward sweep of all commodity prices.

Such a policy would intensify the surplus problem, not only on the side of consumption, but also on the side of production. Even with the retention of acreage control the profit reward offered by a parity loan would invite more intensive cultivation, and a much higher crop yield per acre. Within the past two years we have already had occasion to see potential achievements of cotton cultivation. With increased yield and diminished consumption, equally logical results of such a policy, its most certain accomplishment would be to pile still additional millions of bales upon those already accumulated, and at the same time build about them an insuperable wall to prevent their utilization by the people. Eventually the financial losses to the Government from such a policy would be truly staggering, and dwarf into insignificance the heavy expenditures with which we have become familiar.

Unless we are prepared to give up for all time our exportation of raw cotton, and to reduce American crops to six or seven million bales per year, the adoption of a parity loan policy would necessitate the payment of huge subsidies on exported cotton. At forty dollars a bale, which is a reasonable figure to anticipate, such a subsidy would amount to one hundred million dollars per year on an export of only two and one-half million bales. This is truly a high price to pay for the double privilege of subsidizing foreign consumers and penalizing American consumers.

The same considerations apply in principle to the proposal to finance

the cotton control program by resort to the so-called marketing certificate plan. Here the purpose is avowedly to raise the farm price of cotton to the parity level. Again the result would be to surrender the greater part of the American cotton market to synthetic fibers, paper, jute, tin, wood, and plastics, to mention only a few of the great horde of cotton substitutes.

Such a plan would increase the cost of cotton as a raw material from sixty to seventy-five per cent. If passed on to the consumers this increase, on the average, would be the equivalent of a twelve per cent retail sales tax. Imposed directly upon the public such a tax would be politically ruinous. Imposed indirectly, it still has all the familiar economic earmarks of a sales tax, with its inequities between the different classes of consumers. Consumer buying resistance and consumer injustice will not be placated in this instance by shoring up this tax on cotton goods by compensatory taxes on selected competing products. If it is uneconomic and inappropriate to raise arbitrarily the price of one commodity to the point where it is impossible to withstand competition from other commodities which are being normally produced and normally marketed, the evil is made all the greater by extending the range of arbitrary control.

Aside from this consideration of principle, it is impossible in practice either to set up or to administer a system of compensatory taxes involving so wide a range and variety of competing products. In a technical sense, the character of such products is continually changing. Modifications and refinements are always under way. Their costs of production are never static. The uses to which they are put are never constant. Every compensatory tax would involve a relationship, not with cotton alone, but a network of multiple relationships throughout the entire range of competition.

The Cotton-Textile Industry believes that its greatest contribution to American agriculture, and to the national well being, can be made by widening and deepening the channel of cotton goods distribution. It wishes to preserve and strengthen the importance of cotton in consumption. It does not believe that this position is irreconcilable with a soundly-administered cotton control program. It does not question the desirability or necessity of maintaining the net incomes of individual cotton farmers. It does not believe that, at this time, it is possible to derive the full amount of this income directly from the price of cotton. We propose that it be accomplished at that future time which we are endeavoring to hasten, when the market for cotton shall have become so wide and so deep that it will provide the foundation upon which our cotton culture can stand alone, as a self-supporting economic entity.

It is truly amazing that we should have to struggle incessantly and desperately to keep open this one and only course to the eventual prosperity and economic freedom of the American farmer.

Nothing in economics could be more nearly true than that it would be economic folly to arrest the present upward trend of cotton consumption by artificial stimulation of consumer resistance to unfortunate and inadvisable price changes.

DISCUSSION BY BENNETT S. WHITE, JR.

University of Kentucky

The cotton problem up to the present and insofar as it is something new and peculiar to the last few years, is primarily an export problem. In the brief space which has been allotted to me I shall summarize briefly the forces which, as I see it, have been of the greatest importance with respect to the foreign market for cotton in recent years and shall attempt to preview briefly how these and other influences may be expected to operate in the future.

In this connection we may pretty much leave out of account the situation in recent months, when, as we all know, cotton exports have been extremely small in recent months in response to those war influences which have almost completely throttled all exports of farm products from this country.

Even before the present war, however, during the five seasons ending 1938-39, exports from the United States and foreign consumption of American cotton averaged less than two-thirds as much as the eight or nine million bales used abroad in the late 1920's and just before the World War. This was true, notwithstanding the fact that the mill consumption of all cotton in foreign countries during this same period averaged higher than in any other period for which data are available. Undoubtedly this high level of total consumption was due in a considerable measure to abundant supplies and low prices of raw cotton and the increase in industrial activity and consumer incomes in most foreign countries which continued with only relatively minor interruptions from 1932 to 1939. Certainly the demand for cotton would have been even greater had it not been for the expanding production and utilization of substitute fibers, particularly rayon, which were of especial importance in Germany, Italy and Japan, where the use of synthetic fibers occupied an important place in the drive of these countries to achieve higher degrees of self-sufficiency for military and political purposes. Military operations in certain countries and the generally rising structure of trade barriers and economic animosities throughout the world were further discouragements to cotton consumption and trade. The fact remains, however, that total cotton utilization did expand appreciably abroad while the utilization of American cotton decreased. This widening spread between consumption of all cotton and consumption of the American staple was accounted for, of course, by increased utilization of foreign growths.

In attempting to account for the waning popularity of American cotton, I shall first mention certain unfavorable influences which had their origin entirely or at least primarily in the demand side of the picture. One of these influences was the material increase in cotton manufacturing during the 1920's and the 1930's in countries which were formerly unindustrialized, particularly in the Orient. Mill consumption in the Orient during 1936-37, the last season preceding the outbreak of military operations between Japan and China, was twice as great as in the early 1920's. A still larger measure of growth could be shown if comparable data were available

for the period previous to 1914. I do not have time of course to enter into the discussion of why this development of cotton spinning and weaving occurred in these areas, but one of its most apparent effects was to materially decrease the exports of manufactured cotton goods from the industrial countries of Western Europe, of which by far the most important was Great Britain. During most of the 1930's the raw cotton equivalent of textiles exported from England averaged only a little more than a million bales as compared with over two million during the 1920's and more than three million before the World War. The shrinking overseas market for British textiles brought about a downward trend in British mill consumption of raw cotton notwithstanding a larger consumption of cotton goods in the United Kingdom. British demand for American cotton was affected particularly severely by this loss of textile markets, since the markets lost were primarily those for coarse and medium quality textiles, which are made chiefly of medium staple cotton, most of England's supply of which had always come from the United States.

It might occur immediately to some to ask as to why this would result in any net decline for American cotton since one might think that it would merely represent demand from Japan, China and India replacing that of England. As a matter of fact the data show that the consumption of American cotton in these countries and the proportion of their total cotton utilization represented by America, especially in Japan, tended to increase during most of the post-World-War period. Actually utilization of United States cotton increased due both to the enormous increase in cotton manufacturing and the technological necessity of using more medium staple American cotton in the manufacture of the better grades of textiles, but it still seems reasonable to conclude that these countries have not purchased as much American cotton as would have been purchased at the same price had the industries of Western Europe retained their former preeminence. Technological practices, handling and financial arrangements and to some extent the prices and proportioning of the factors of production in Great Britain were based upon the use of American cotton for coarse and medium quality goods. On the other hand, machine spinning in the Orient was first developed on the basis of the relatively short staple, domestically grown Oriental cottons. The bulk of these cottons do not produce as good a product as American cotton and the percentage of waste is higher. However, they are generally lower in price, transportation costs are lower for them, technological adaptation partly offsets their poorer quality and their use is more economical when labor costs are low and the lower priced products appeal to low income consumers.

Other demand factors unfavorable to cotton produced in this country might be mentioned. Among these were the reciprocal and bi-lateral trade arrangements between cotton importing and exporting countries during the 1930's. The fact that deliberate efforts made during this same period to break down the traditional preference in England for American cotton and to educate Lancashire spinners to make increased use of other growths, particularly Indian. A third was the fact that the substitution of synthetic fibers for cotton was particularly pronounced in countries like Germany

and Italy where the proportion of total cotton consumption represented by America had been larger than on the average in foreign countries as a whole.

It appears, however, that the most important reason for the decrease in the demand for American cotton in the world outside the United States in recent years has been in the increased supply of foreign growths of cotton relative to American. The production and consumption of foreign cotton has been increasing for many decades. The upward trend for foreign has been somewhat more rapid than that for American, although the difference in the rate of growth shown by the two series depends upon the period to which and the manner in which the trend line is fitted. The change in the relative size of the domestic and foreign consumption has been especially pronounced during the last few years. In this connection I should like to present some data in addition to those already brought to your attention by Dr. Stine. Foreign production in both 1936-37 and 1937-38 was nearly eighteen and one-half million bales compared with an acreage of between ten and eleven million bales from 1925-29. On the other hand in the last 7 years the American crop has averaged about 2 million bales less than in the earlier period.

For summary purposes let's talk in terms of supply (production plus carryover). On the average during the 1920's American cotton represented nearly 58 per cent of the total world supply of all kinds of commercial cotton. In 1934-35, 1935-36 and 1936-37 it accounted for 51 per cent, 48 per cent and 41 per cent respectively. In 1937-38 the record breaking crop in the United States made the supply of American more than five million bales larger than in the preceding season. The total world supply of cotton was the largest in history. The share of the world total represented by the American staple increased to almost 50 per cent, and has remained at about this figure since then due to huge carryovers of American and a moderate decline in foreign production.

Perhaps more significant, however, than a comparison of the relative amounts of United States and foreign cottons actually in existence is a comparison of the American and foreign growths in commercial or trading channels. During the last 10 years practically all of each year's crop of foreign cotton has been offered for sale to the cotton trade freely and without restrictions during the season in which it has been produced. In the United States, however, the beginning of every cotton season since 1930 has seen a significant amount of American cotton in Government owned or Government financed stocks. These stocks of cotton held out of usual trade channels have represented a particularly large proportion of production and supply during the last few years. Although the 1937 crop was over six million bales larger than that of the preceding season, over five million bales of its passed into Government Financed Stocks, making the supply of "free" cotton available for domestic utilization and export during the season, less than a million bales larger than in 1936-37. From the 1938 production over 4,000,000 bales was added to Government Stocks bringing them on August 1, 1939 to over 11,000,000 bales or nearly 78 per cent of the total world carryover and 43 per cent of the total world supply

of American cotton. There was a net movement out of Government Stocks during 1939 of over $2\frac{1}{2}$ million bales, but the passage of more than 2 million bales of the 1940 crop into these stocks in recent months has pushed them back toward their previous record high. As a result the actual total of American cotton in trade channels during the last two or three years has been smaller than in any time since the early 1920's and the share of the total world supply of "free" cotton represented by American has been the smallest on record. There has been a rather close correlation between the consumption of American as a percentage of foreign consumption of all kinds of cotton and the per cent that the "free" supply of American cotton has represented the world supply of all kinds of cotton.

Reductions in the supply of American, accompanied by the increasing supplies of foreign growths caused prices of American cotton to be high relative to foreign in 1933-34, and 1934-35 and for shorter periods since then. This, of course tended to stimulate the consumption of foreign cottons. It appears however that within a certain range considerable variations in spinning, machinery and technique can be made and have been made which have permitted the use of larger quantities of foreign cotton and smaller quantities of American at about the same marginal rate of substitution as indicated by relative prices as prevailed on the average in the past. Consequently the change in relative supplies of American and foreign seem to have been more significant as a factor indicating changes in consumption than have changes in relative prices.

Perhaps enough has already been said with respect to the task of explaining why there was such a material shrinkage in the foreign demand for American cotton even before the outbreak of the present European War. However, we can not attempt a forecast of foreign demand in the future without inquiring as to the factors which have been responsible for the increase in the supply of foreign growths. This is probably the most controversial aspect of the whole cotton situation. It seems to me that anyone commencing to discuss the factors which have been responsible for the higher level of cotton production in foreign countries should begin by acknowledging that these factors are numerous, interrelated, and the relative importance attached to any one of them depends in a considerable measure upon the personal judgment of the individual concerned.

Part of the long time upward trend in foreign production has been due to an increasing population, larger supplies of capital and labor and an increasing world demand for all kinds of cotton. Government policies have been important. These have ranged all the way from laws and regulations designed to improve the cultivation and marketing of cotton specifically, to things of a much more general nature such as increased irrigation facilities and improved methods of transportation. No doubt these governmental activities particularly those designed to increase the quantity and improve the quality of cotton specifically have been on a more extended scale during the last 10 years.

Practically all of the forms of agricultural aid employed by foreign countries have been used to a greater or lesser extent at various times by the United States. Few countries, however, had had a general fiscal and

commercial policy as discouraging to the export industries as has the United States. By this statement I mean, of course, the historic American Protective Tariff on manufacturers, which as we all know showed a general tendency to increase in height from 1789 until 1930. We are further aware that the restrictive effects of the United States Tariff upon the exports of farm commodities increased following the World War, with the shift of the United States from a debtor to a creditor nation and became even more intense from 1930 onwards with the cessation of foreign lending by the United States. The long time effects of a policy of high and increasing protection as followed by the United States is, of course, not only to reduce exports by reducing the ability of foreign purchasers to pay for them, but also, by increasing the production in foreign countries of those commodities exported from the tariff levying country.

Still other factors have been contributing to the growth in foreign cotton production. Among them have been comparatively high prices for cotton relative to other products competing for land, labor and capital. In part, favorable relative prices for cotton have been due to unusually low prices for competing commodities. An outstanding case has been Brazil with its tremendous coffee problem. Cotton producers outside the United States have also benefited more from the depreciation of currencies than have cotton growers in the United States. India, Egypt and smaller cotton growing areas in the Sterling area received an advantage of this kind between 1931-33. The currencies of China and Brazil have been lower relative to their old gold pars in most recent years than has the American dollar, and in the latter country, arrangements have been made which have made the currency depreciation of greater benefit to cotton exports than to exports in general.

It seems to me, however, that after due acknowledgement has been given to the fact that foreign production has increased due to a continuation of, and in some cases, an intensified operation of those forces which have been tending to increase foreign production over a longer period of time, considerable emphasis still must be laid upon the effect of crop restriction and price stabilization activities in the United States. We have already mentioned the discouragement which reduced supplies, and above all, reduced supplies of "free" cotton beginning in 1929-30, have had upon the foreign consumption of American cotton. A large part of that effect has taken place thru the influence which these programs have had upon the production of foreign growths. These activities, restriction of production plus government loans and purchases certainly have exerted a tendency to maintain the general level of world cotton prices higher than otherwise would have been the case, that is at a higher level than would have been established by the forces of demand and supply operating alone. Furthermore, it must be recalled that foreign countries knew, and in fact were informed by frequent utterances of officials that this country had embarked upon a price raising program for cotton.

Opinions as to how much influence this program actually had upon foreign cotton production differ greatly, and quantitative analysis can be used and the basic data interpreted to indicate that the American cotton policy had, on the one hand a large, and on the other a small effect on

the course of foreign production. It is certainly true, however, that qualitative analysis and experiences of producers of other staple internationally traded commodities indicate that an attempt by one supplying country, even if it be by far the largest single source of supply to raise prices by the curtailment of production or the withholding of supplies from market is followed by increases in production in competing areas. In order to achieve any given price effect, the extent of the reduction necessary in the reducing country becomes greater as time goes on, and if the policy is persisted in, the supply reducing country can expect to become an insignificant factor in the world market.

What is the future for cotton exports from the United States? This, of course depends upon what happens in numerous theatres of activity. Who will win the War? If Germany and her Allies are victorious will they promote a general reduction of world trade barriers and pursue policies designated to improve the economic welfare of mankind in general or will they make use of their new found power and bargaining advantages to utilize barter and bi-lateral trade deals for military and political as well as economic reasons, perhaps directed specifically at injuring the United States? Most political scientists seem to feel that the second of these possibilities is the more likely. Conditions also may differ greatly, even assuming that Great Britain and her Allies are victorious. Will a trend of the last 10-20 years in the direction of economic nationalism be maintained and intensified? Or will there be a wide-spread revulsion of feeling against trade restrictions of all kinds as reducers of standards of living, breeders of hate, causers of war, and as a consequence a strong movement toward freer trade?

It seems to me that about all that we can profitably do here is to point out certain things of which we can be reasonably sure will be true regardless of the trend of political and military events. In the first place, we can be certain that for sometime at least, foreign countries will be considerably poorer than they have been, not only will they have smaller incomes with which to buy cotton goods but they will have a reduced capacity for exporting, smaller earnings from shipping, smaller overseas investments, from which to derive the means for paying for imports. Furthermore, the upward trend in the utilization of rayon probably will continue and the effects of the forced substitution of synthetic fibers for cotton in recent years will not be entirely lost even if freedom of trade, and freedom of choice are substantially restored.

Foreign cotton production can not be expected to return to the level of 10-12 years ago. We know that large areas of the world are suited to cotton cultivation. Many of these areas will remain to a considerable degree dependent upon the export of raw materials, and investments made and skills acquired with respect to cotton production during the last 10-12 years, will make for a sustained higher level of output. Allowing for changes in the general level of prices due to changes in exchange rates and monetary influences in general, it does not seem reasonable to expect cotton prices to be materially higher than on the average during the past few years.

It seems to me to follow, that a foreign demand for United States cotton

at the close of the present war probably will be even lower than in the period immediately preceding the outbreak of the war. The United States will be a smaller factor in the world cotton supply situation, than in the past, and I am in complete agreement with Dr. Murchison that any determined price raising activities would speedily put the United States out of the foreign market unless export subsidies are resorted to. A modification of the American Tariff Policy will be even more important for the export trade than has been the case in the past. Furthermore, there may be developments on the supply side within the United States, entirely apart from government policy with respect to cotton specifically, which may effect the ability of this country to export. A sustained and substantial increase in industrial activity with comparatively high wages in urban industry and high prices for manufactured products will have the same effect that the Protective Tariff has had over a long period of time, namely—to raise the prices of things farmers buy and hence make cotton farming less profitable to farmers who will necessarily be selling at low prices in the world market, but at the same time it would tend to offer alternative opportunities for employment off the farm, and in industry. The effect on exports of these two sets of influences might be pretty much the same, although the cotton grower would be much better off if the second were the more important.

THE EXPANDING SCOPE OF AGRICULTURAL ECONOMICS

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Few fields of scientific study are so young that their founders still live; yet this is true of both agricultural history and agricultural economics in this country. Each of these fields has a history which commands respect and it is fitting that various aspects of their histories be discussed at meetings such as this. As a knowledge of both fields is an advantage to the worker in either field, it is also fitting that the Agricultural History Society and the American Farm Economic Association should hold their meetings in the same place at the same time; and more particularly, that once each year they meet in a joint session.

One of the papers read before the joint session of these two organizations at their last meeting traced very effectively the economic conditions existing in agriculture in the decades of the 1880's and 1890's.¹ Most of the advice farmers had received up to that time pertained to increasing the production of agricultural products. However, as we know, they found that this was insufficient—something was lacking—for increased production did not necessarily result in improving the profitability of farming.

In the latter part of the last century many people of widely different backgrounds directed their attention to the ills of agriculture. The farmer himself did not normally write about his problems but records of his reactions to the economic forces affecting him are found in many places. Some farmers did however reduce to writing their reactions to the conditions then existing in agriculture. An example is a speech given by J. H. Hale, a famous peach producer, before a meeting of farmers and agricultural workers at Amherst, Massachusetts, in 1898. His paper entitled "The Business Side of Agriculture" is significant for several reasons.² It was written by a practical farmer who was a specialist in one particular line of production—peach growing. Hale was a farmer who not only produced excellent peaches, but who also found farming profitable. Further-

¹ Henry C. Taylor, Early history of agricultural economics, *JOUR. FARM ECON.*, Feb. 1940, 22:84-97.

² Forty-sixth Annual Report of the Secretary of the Massachusetts State Board of Agriculture, 1898, Mass. Pub. Document No. 4. Boston, Wright & Potter Pr. Co., 1899, pp. 84-101.

more, this paper was written by a man who was willing to adopt new practices which gave promise of being worth his while. Hale had taken no courses in farm organization and management or marketing. Nor had he been a student of economics, as this term is generally understood; yet his paper reveals an unusual comprehension of all three fields of study. What is more, he had the insight to realize how the relationships he observed could be utilized in organizing his farming operations. Because of this, he found farming quite profitable while many of his neighbors were losing money. Hale did not consider himself as contributing to a new field of study nor did many of the writers of that period whose books and articles are found in our libraries. For the most part their writings were attempts to grapple with, and to solve, the financial problems of agriculture. Some people suggested reforms within agriculture, some proposed external reforms, others favored attacking the problems from both inside and outside the industry, but practically none achieved direct success.

It is not meant to imply that their efforts were useless. On the contrary, they laid the foundation for the work in agricultural economics which has since developed in this country. Hale and others who wrote in this early period were not men of science so far as the economic problems of agriculture were concerned. Their field was more the art than the science, but they aided the farmer to become more articulate; they inclined the ear of the legislator more toward hearing; they began to awaken administrators in the land-grant colleges and the United States Department of Agriculture to the fact that a need existed for a better understanding of economic problems, and they inspired men with a scientific training to utilize their energy in seeking out the solutions to the economic problems of agriculture.

Those men with scientific training may be roughly divided into two groups—those who reached out from economics to attack the problems of agriculture, and those in the various agricultural sciences who started considering the financial and other economic aspects of farming. Some of the leading American economists in 1900 were strongly influenced by the point of view and method which had been made prominent in Germany by the Old Historical School. Some economists, of whom Richard T. Ely, Thomas Nixon Carver and Thorstein Veblen may be thought of as examples, became interested in the economic problems of agriculture and their

research along these lines was noteworthy. It was characteristic of the economists to view this new field of activity as merely another section of the entire economy in which economic forces operate. As such, it was theirs to study along with all other economic phenomena, and they never became so engrossed in the economic aspects of agriculture as to lose sight of the fact that first and foremost they were economists who merely directed their investigations to the economic problems of agriculture.

The agriculturalists who began to direct their research toward the financial aspects of agriculture were often men of imagination who saw that even if they went to the very limit of their particular field of specialization, they would be unable to materially improve the farmer's financial condition by studying production alone. This limitation on the effectiveness of the work in the various production phases of agriculture led the workers beyond the limits of their field and into what has since become known as agricultural economics. Their motive was not to open up a new field, but rather to carry their own field a little farther and to find means whereby the findings of their research and study could be taken by farmers and translated into a higher net income. It was only by degrees that the new field of study emerged and became thought of as something different from the production sciences of agriculture.

Even at this early stage one of the major points of friction around which argument was to center for some 20 years was already evident. I refer to the clash between the "over-all," "industry," or "public" point of view, and the "individual," "farm," or "private" point of view; the economists championing the former and the agriculturalists the latter for the most part. The positions of these two groups were outlined in the paper by Dr. Taylor of which mention has already been made. Lest the impression be left that there were two distinct positions and that each person belonged to one or the other, two things should perhaps be pointed out. Some people occupied a middle position and felt that the new field embraced both points of view. As time has passed, this middle position has become more and more important. Furthermore, even within the group primarily interested in the individual farm, considerable difference of opinion was found. Perhaps it is fair to say that there was a strong tendency for each person working in the field of what is now agricultural economics to define the field in terms of his own

background and interests. For instance, a person doing research in agricultural economics who had received his training in agricultural engineering was likely to think of agricultural economics as consisting largely of principles pertaining to the farm lay-out, and time and motion studies, whereas the men whose previous work had been in agronomy were more likely to be interested in the economic aspects of crop rotation or the seasonal distribution of the labor and work-stock requirements. Similar differences of opinion existed among the economists as to the exact nature of the work to be done.

During the earlier part of this century the annual conventions of the Association of American Agricultural Colleges and Experiment Stations functioned as the principal clearing house for ideas on the scope of agricultural economics. It is revealed in the proceedings of those meetings that there was disagreement, if not actual confusion, on many points of concern to workers in the new field. Many research workers lacked a clear conception of the tasks before them and teachers were uncertain as to the part this new field should play in the training of their students.

Even though the period extending from about 1899 to around 1915 was one of uncertainty as to just what the new field was to be like, or for that matter, whether there was to be a new field, it was a fruitful period. Arguments between supporters of the different views were long and heated but they presumably succeeded in making all of the views available for one's consideration. The result was that slowly but surely the field became delimited and more general agreement upon the definitions of the more commonly used terms was reached. Contributions were also made to the field of methodology during this period.

Whenever a new field of study is opened up, whether it is agricultural economics or some other, it is first necessary to draw upon the methods and techniques which have been developed in other fields and to add to those as new and better ways are developed. Those new methods and techniques may be merely refinements of old methods to make them more suitable for the new uses to which they are to be put, or they may be almost, if not entirely, new. In any event the body of such techniques and methods either remains unchanged or is enlarged so that the research worker in any period likely has much better tools with which to work than either he or his predecessors had at an earlier date. Consequently his field of

action may be broader for he has tools at his disposal which permit him to deal effectively with new problems and new aspects of old problems.

A new field of study is always started by workers in another field. Likewise, by definition, the first teacher of any course never took such a course himself. For the first few years the only workers in the field of agricultural economics were men recruited from other types of work. This condition continued until the new departments began to turn out students who had studied agricultural economics. As the number of men who had received training in agricultural economics increased, it was possible to spread the work to institutions which had previously had no one to devote their time to this type of work. This in turn brought more students in contact with the field and made further expansion possible.

As time passed and conditions both inside the field of agricultural economics and in the entire economic structure changed, more and more occasions arose when agricultural economists received requests for various types of information. Many such questions were directly in their field, but a number lay outside any particular recognized field. In this latter case there was little they could do while acting as specialists in their own particular area of study. However, there were times when their training and experience put them in as good, or perhaps better, position than anyone else to give an answer to such questions, even though they were outside their field.

If a college department or governmental research agency received numerous and repeated requests for information of a particular sort or on a particular topic, it was quite likely that the administrator in charge would investigate as to whether or not the information was already available or whether it could be more readily obtained elsewhere. If it was found not to be available and that his organization was in as good or better position to do the work than any other, he might either obtain additional funds with which to conduct the new investigations, or he might shift a portion of the resources already at his disposal to the study of the new problems. In either event, one or more of several things might happen: (1) the agricultural economists might broaden the scope of their activities either by directing their attention to hitherto unstudied economic aspects of old or new problems, or by directing their attention to hitherto unstudied non-economic aspects of old or new prob-

lems. A third possibility would be by a combination of these two. In any event it can be said that there has been development, but in only the first and third cases can it be said that there has been development in the scope of agricultural economics.

It is desirable for a man to be far-sighted enough to anticipate that for which there is to be a need and to conduct such research as is needed to enable him to supply the factual basis on which decisions can be based when occasions arise. This is an ideal toward which to strive, but in most cases it is not realized. Conditions were such during the World War and again during the thirties, to cite but two examples, when the demands made of agricultural economists were far beyond anyone's ability to foresee any great length of time in advance. The developments of the latter period are known to all of us. They are also traced in an article which appeared in the *JOURNAL OF FARM ECONOMICS* in 1937.³ For that reason they will not be developed here.

We have covered this broad field so hurriedly that time has not permitted the introduction of much illustrative material. Before closing, however, we should mention some conditions favoring the expansion of the scope of agricultural economics and some of the possible pitfalls that may be encountered. The former will be evident from what has already been said; the latter should be so generally recognized that a mere mention of them will be sufficient.

Three major conditions favor an expansion of the scope of agricultural economics. One factor contributing to an expansion is that a need for such expansion be felt. Another contributing factor is an adequate supply of qualified personnel. Improved research methods and techniques also facilitate an expansion of the scope of the field. Some may wish to include plentiful funds with which to carry on the work as a fourth condition favoring expansion.

As there is probably little doubt that the scope of agricultural economics will continue to expand either by a pushing out or a filling in process, or both, we will point out some of the more obvious pitfalls to be avoided. One of the essentials in science is that the scientist keep oriented. It is indeed dangerous to become so engrossed in some new segment of the field that a loss of perspective results. Superficial treatment of the problems being considered is another pitfall against which one should continually remain on guard. This

³ Mordecai Ezekiel, The broadening field of agricultural economics, *JOUR. FARM ECON.*, February 1937, 19: 96-101.

may take the form of either playing up to the whims of the public or in failing to go to the foundation of the problem and working up from there. The third pitfall is that of yielding to any of the various pressures which may be brought into play and enlarging the staff when so doing means that positions will be given to persons who are at the time unqualified for the duties involved and who are likely to remain so.

Every worker in the field of agricultural economics has an opportunity to develop individually and to contribute to the future course of his science. These are his privileges, but like all privileges they are accompanied by responsibilities which in this case include remaining ever alert, making the most of every opportunity to develop the work of agricultural economics, and in so doing effectively resisting all pitfalls.

RECONSIDERATION OF RENT THEORY AS IT APPLIES TO AGRICULTURAL LAND

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I shall depend in the subsequent paragraphs upon the conception of rent as "the Surplus earned by a particular part of a factor of production over and above the minimum earnings necessary to induce it to do its work."¹ Such surpluses may be earned only by factors, the supplies of which are to a degree inelastic. Certainly the supply of agricultural land viewed either as space or fertility or both is relatively inelastic. All the net earnings of land will be regarded as rent, but that there are "capital" elements in "land" it is no part of my intention to deny.

Furthermore, I shall regard intensity as referring strictly to the intensity of land use, or to the application of labor and capital to land. That is, for the purposes at hand, labor and capital will be regarded as being relatively easily variable in contrast to a relatively fixed or inelastic supply of land. Intensity so employed is an input concept and is not to be thought of as synonymous with land productivity as some have used it. Land productivity is governed quite as much by the efficiency of the land in use as by the intensity of the use and there is no necessary relationship between degrees of intensity of use and land quality or rent. That is, rents and intensities of two grades of land are proportional only when their efficiencies are proportional as well. There have been some attempts recently to make intensity virtually synonymous with output or returns but such are mere prostitutions of language in the manner of making it mean what you wish when you wish it. The literature of economics sanctions no such usage.

Intensity and Rent

One of the more useful developments in the theory of the relationship of intensity and rent is that which grows out of the distinction between primary and secondary intensity as described recently by Dr. Bunce. Primary intensity, according to Dr. Bunce,² relates to the production of crops, and secondary intensity to the processing of those crops, notably in livestock production, on the farm. The distinction, while most useful, is one that must of

¹ Joan Robinson, *Economics of imperfect competition*, McMillan and Co., London, 1936, p. 102.

² A. C. Bunce, *Some economic and social problems of soil conservation*. Iowa State College, December, 1939. A preliminary study. (Mimeographed.)

necessity at times be arbitrary. I can visualize some lively arguments relating to the boundary lines between the primary and secondary phases. A cow on pasture is, I presume, engaged in primary production but when she steps into the barn to consume hay she gets over the border into secondary production. Or perhaps she is in the primary phase only when cropping grass and when she rests and chews her cud, the real point at which processing begins, she enters upon secondary production. Likewise, crop production is primary production. But at what point does the processing of the crop begin? Is threshing a part of the processing, or does processing begin as soon as the crop is severed from the ground, so that shocking, too, becomes secondary production. Then there is the further question of the cash-crop farmer hauling his produce to town. It is a little difficult to view this activity as strictly primary, but hard also to put it into the secondary category.

These are real difficulties in the path of making any exacting use of the distinction between primary and secondary intensity; but the most useful tools are not always the sharpest, and this distinction remains a useful tool.

The distinction has, furthermore, some immediate relevance for rent theory, for, as Dr. Bunce notes, rent is determined by the marginal productivity of the farm enterprise including both primary and secondary production. The place of secondary production in the determination of the rent of agricultural land is so seldom noted that this recognition of it is commendable.

The matter is, furthermore, of some importance, since rent of agricultural land is so often explained solely as the surplus that arises when the land is used to produce some particular crop. Margins of transference in terms of the economic or no rent margins for milk, corn, wheat and ranching are outlined even in very recent books as though types of farming accommodated themselves to changes in fertility and distance to the market according to a simple pattern of this zone for milk, and this for corn, that for wheat and another for ranching. Actual inspection of the pattern of land use seldom reveals any such simplicity, and those who have engaged in type-of-farming area studies know how complex, indeed, are the forces actually determining these margins of transference.

The use of the "isolated state" presumption and the need to facilitate comprehension by assuming simple and later increasingly complex situations does something to validate such over-simplified explanations of rent. Even under conditions of the "isolated state," however, it is unsafe and unreal to ignore intra-farm margins and that great range of considerations that lead farmers to combinations of supplementary and complementary enterprises on their

farms. Rents are not determined apart from the considerations governing the apportioning of the farmer's time and the use of his equipment as well as of his land. That is, there is an intra-farm process of proportioning in relation to the comparative advantages of the various enterprises that is quite as significant in rent determination as the inter-farm competition at which the usual analysis so commonly stops.

More often than not, therefore, it is not the advantage of truck crops over market milk and milk over corn and corn over wheat,

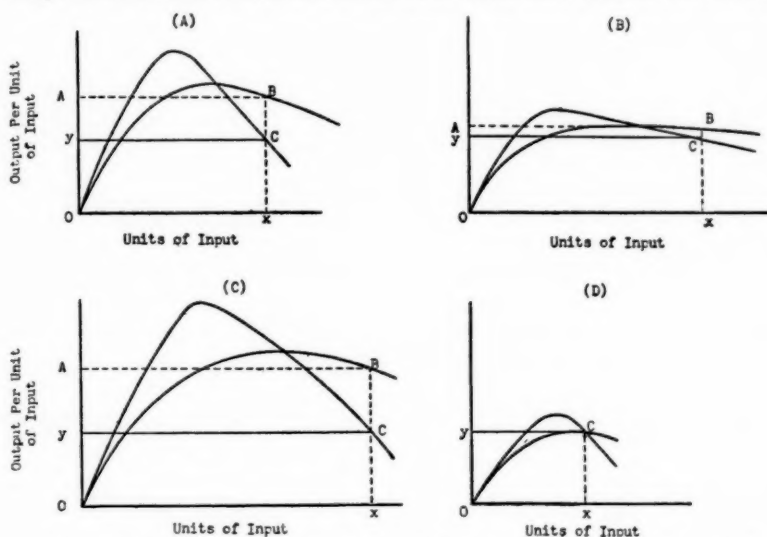


FIG. 1. RENT OF LAND UNDER VARYING ASSUMPTIONS WITH RESPECT TO EFFICIENCY AND CAPACITY. THE TWO CURVES ARE MARGINAL AND AVERAGE PRODUCTIVITY CURVES. THE RENT RECTANGLE IS $yABC$ IN EACH CASE SAVE (D) IN WHICH RENT IS ZERO. IN (A) EFFICIENCY OF PRODUCTION IS HIGH BUT CAPACITY LOW. IN (B) EFFICIENCY IS LOW AND CAPACITY GREAT. IN (C) EFFICIENCY IS HIGH AND CAPACITY GREAT AND IN (D) CAPACITY IS LOW AND NET EFFICIENCY ZERO AS IS TRUE FOR NO RENT LAND.

but the advantages of one system or type of farming over another, that constitutes the really competent explanation of rent differences. The forces which determine the marginal productivity of land include those that concern the farmer in the seasonal distribution of his labor, the balancing or proportioning of his farming enterprises be they complementary or supplementary, the determination of the size of operating unit, and a whole further range of farm management considerations of somewhat lesser stature. To put the matter more formally: Rent will tend to reflect the marginal productivity of land under a system of farming or of land use

which uses the land as effectively as the normal or competitive level of management of those bidding for its use permits.

Much of the explanation of rent is, as I have indicated, to be discovered in the proportioning of the factors of production and it is for this reason that rent and intensity of land use are so often linked. Proportioning and intensity indeed, refer to much the same

TABLE 1. DOLLAR INPUTS* OF LABOR AND CAPITAL PER 100 ACRES OF LAND IN FARMS FOR MISSOURI TYPE-OF-FARMING AREAS† DATA FROM THE 1930 CENSUS OF AGRICULTURE

Area	Land value per acre	Total input	Labor input	Capital input
State		\$782.68	\$445.12	\$337.56
I. North. & West. Meat Production				
a. Marshall	\$74.18	1062.95	481.56	581.39
b. Grundy-Shelby	44.67	776.61	401.72	374.89
c. Shelby-Lindley	33.31	688.31	376.81	311.50
d. Putnam-Lindley	32.94	706.28	372.70	333.58
e. Summit	46.20	840.86	401.68	439.18
f. Cherokee-Bates-Oswego	28.40	649.86	384.36	265.50
II. Ozark Meat Production				
a. Clarksville-Lebanon	21.75	498.59	302.21	196.38
b. Clarksville-Huntington	14.62	519.97	359.92	160.05
III. Cash Grain, Truck and Fruit				
a. Suburban St. Louis	165.58	1948.96	967.43	1017.46
2a. Suburban Kansas City	215.64	2670.38	1576.46	1093.92
IV. Ozark Border Dairy and Wheat	24.73	673.45	405.30	268.15
V. Ozark Plateau Dairy and Poultry	24.35	663.66	395.49	268.17
VI. Southwest Fruit, Dairy, and Poultry				
a.	31.50	839.48	532.29	307.19
b. (J)	44.27	838.24	450.86	387.38
VII. Southeast Lowlands Cash Crops				
a. Northern Corn, Cotton, and Wheat	32.70	820.86	650.72	215.14
b. Southern Cotton	57.30	1331.42	1082.75	248.67

* Inputs were based upon (1) average wages per year per effective worker, (2) Total value of fertilizer, feed, and supplies bought, (3) 8 per cent of value of livestock, (4) 12 per cent of value of building except dwellings, (5) 20 per cent of value of implements and machinery.

† For a description of the Type-of-farming areas of the state see Missouri Ag. Exp. Sta. Res. Bul. 284.

thing save that intensity carries with it more of the connotation of degree. As I stated above, there is no law relating intensity to rent. Rather the relationship is one that can be explored and understood only when sufficient cost-price or input-output data are available. What is needed particularly are numbers of curves of input and output under a number of different situations representing land of broadly varying capacity and efficiency.

In the absence of such data it is necessary to posit certain curves as representing situations chosen to illustrate differences. The four

diagrams in figure 1 represent rent under four such situations. Output curves are known to be exceedingly diverse and that there are counterparts of these curves in figure 1 available under circumstances of actual land use is hardly open to question.

Nevertheless, to obtain some empirical substantiation of these presumed variations of intensity certain input data for the types-of-farming areas in Missouri were calculated from data of the 1930 Census of Agriculture and are presented in table 1.³ Measures of input are in dollar terms and are only as exact as data of the census permits. That is, they must be counted as providing only a somewhat rough illustration of the situations involved. Inputs are in terms of amounts of labor and capital applied per 100 acres of land in farms in the various type-of-farming areas in the State.

Intensity of land use as measured by these dollar inputs varied greatly from area to area within the State. In general the higher the value of land the greater the input but the correlation is by no means perfect. In the cotton counties of the southeastern lowland areas of the State, (VIIb) for instance, inputs were considerably greater than in the extreme northwestern meat producing area (Ia) of the State. Nevertheless, land values were much higher (29 per cent) in the latter area. The efficiency of production was apparently greater in the northwestern area though intensity of use as measured by these input elements was greater in the Southeast.

Capital and Labor Intensity

These differences in total intensity are only part of the story. There are equally wide differences in the proportions of labor and capital inputs. In the northern meat production areas of the State labor inputs were low relative to capital inputs. These areas as is well known are the more highly mechanized areas of the State. Cotton culture by contrast is still largely handicraft and in the most intensive cotton section of the state capital inputs were very small in relation to the inputs of labor. To contrast extremes: In the most fertile of the northern meat producing areas (Ia) capital inputs were 21 per cent greater than labor inputs, as we have measured them, while in the southeastern cotton counties (VIIb) capital inputs were only 23 per cent as great as labor inputs. These facts and presumed counterparts of them in other parts of the country are significant for the analysis of the dynamics of rent as I shall point out later.

³ These data are from a study prepared by John H. Dickerson, Input-output relationships by types-of-farming areas in Missouri.

Rent Dynamics

The literature of land economics provides a reasonably comprehensive treatment of the determination of rents under certain assumed conditions. Not so much appears to have been written about the dynamics of rent and there has been only a meager development of tools of analysis that permit a deeper probing into changes in rents that are constantly transpiring. The explanation of rent changes is, of course, a complex matter and the range of factors that needs to be considered in any competent explanation is cumbersome broad.

Because of the limitations of time, it will be necessary to restrict consideration of most of the factors relevant to the dynamics of rent to a mere listing of them only. There are, of course, (1) rising and falling prices and the changing reactions of farmers to price changes, (2) the revaluation of the security and desirability of farming as an occupation, (3) the revaluation of the risks of farming and the possible changing liquidity preference of farmers as investors, (4) the changing costs of credit, (5) the changing efficiencies and changing cost relationship of the variable input elements with which farmers and landlords deal (6) changing public costs (7) changing aspects of the competition of tenants in their bidding for land and finally also the imponderable changes in governmental policy which is becoming so great a factor in the agricultural outlook. These are, of course, only the major considerations. There are innumerable others that could be mentioned.

There is no way of taking account of the effect of all such impending changes on rents because there is no way of knowing in advance what the changes will be and still less of measuring their magnitude. About all that can be done in a paper on rent theory, therefore, is to keep on with the refinement of old tools and explore the possibility of developing a few that are new. Theory, however fine spun, that is without apparent application is but a sterile tool. In the subsequent discussion of rent dynamics I shall, therefore, attempt to keep in the foreground certain possible applications. I shall also attempt to imply or suggest types of new data that might be obtained not only with the eye to understanding existing situations but even more to prepare for the coping with new situations.

The Elasticities of Production and Substitution

One of the tools of analysis that has been widely used in price analysis is that of elasticity. The central idea of elasticity in economics is the response to change. We define the elasticity of demand as the ratio of proportionate changes in price and amounts taken that can be calculated from the data of demand schedules.

Land economists have not made appreciable use of the idea of elasticity for purposes of their analyses chiefly, perhaps, because the data for measuring the types of elasticities in which they would be interested have so seldom been available. Nevertheless, a knowledge of elasticities may prove useful and it may be possible to seek deliberately in the future the data which will make analyses making use of the elasticity concepts possible.

There are two types of elasticities to which I wish to refer; first, the elasticity of production and second, the elasticity of substitution.

Briefly, the elasticity of production is the proportionate change in output that accompanies a given proportionate change in inputs.⁴ Elasticity of production is great when the decline in marginal output with each added input is small or when the efficiency of production with increasing inputs is well maintained. The elasticity of substitution, on the other hand, refers to the reapportioning of variable inputs as their relative marginal efficiencies change. Formally defined, the elasticity of substitution is the ratio of changes in marginal inputs of the variable factors divided by the ratio of the changes in their prices. Less formally, "If the degree of elasticity of substitution is high, a lowering of the relative price of one factor will lead to a considerable expansion of its employment . . . If, on the other hand, technical conditions do not permit any material degree of substitution in response to changes in the relative prices of the factors, the elasticity of substitution is slight."⁶

Rent and Elasticity

Perhaps as good a method as any of exploring the relationship between rents and the intensities of land use under varying circumstances of elasticity is to take some hypothetical situation not too remote from the actual and trace out the developments under varying assumptions.

To begin with, how are varying situations with respect to elasticity related to rent changes following upon changes in prices and costs? In general, the answer is that a rise in prices or a fall in costs of the variable inputs, other things equal, will lead to larger *relative* increases in rents in situations in which the elasticity of production is relatively great. Changes in the costs of the input elements commonly underlie changes in the cost or input curves which in turn may either increase or decrease the elasticity of pro-

⁴ For a much more complete discussion of the elasticity of production, see A. C. Bunce, *op. cit.*

⁵ McIsaac and Smith, *Introduction to economic analysis*. Little, Brown and Co., Boston, 1937, p. 242.

duction. There may, indeed, be some change in production elasticity when prices rise (or fall) even if there is no change in input costs since elasticity of production is seldom exactly constant over any considerable range of inputs.

Second, the effect on rent of changing costs of the input elements is dependent also upon the elasticity of substitution of these elements one for another. Thus, if the elasticity of substitution for an input element the cost of which has declined is high, costs of production will be more affected than would be the case if the elasticity of substitution were lower. Rent would be affected accordingly.

So small is the exact or quantitative knowledge of these elasticities that it is hazardous to apply them as tools of analysis in certain practical situations. However, something is to be gained by making the attempt, since only by the attempt to apply them can their significance be gauged and perhaps effort to obtain more exact measures of them be stimulated.

Such preliminary work as we have been able to accomplish in Missouri with respect to the measurement of capital and labor intensities in the type-of-farming areas in the state⁶ indicated, as noted above, that intensity was great and the elasticity of production high in the southeastern cotton counties and that a contrary situation was characteristic of the meat producing sections of northwestern Missouri. As between these two areas also there was a further difference. As measured by dollar inputs of both, capital intensity was much greater relative to labor intensity in corn belt than in cotton belt counties. Furthermore, in the northwestern counties much capital and relatively little labor was used while in the cotton counties little capital and much labor was employed.

With these facts in mind, let us assume for purposes of analysis (1) a sharp decline in the absolute cost of capital equipment in the cotton producing counties and a decline also in capital costs relative to labor costs. We shall assume also that costs of capital declined in the northwestern meat production area but that the decline was moderate and that relative to labor costs there was little if any change. There is, of course, far more than a shadow of substance to such presumptions. The cotton areas of the South have been until recently notoriously high interest rate areas. The decline in such rates in the modern period because of an increasing use of production credit and Farm Security Administration loans has probably been greater in the South than anywhere else in the country. On the other hand, wage rates and standards of living, never very high for the agricultural working classes, have been artificially supported

⁶ Using data from the 1920 Census of Agriculture.

by various aspects of the Social Security program so that wage rates may well have declined less than credit and capital costs. There has also been, apparently, some rise in the marginal efficiency of capital apart from that involved in the decline in its cost, as indicated by recent studies of costs and methods of producing cotton. In effect these improvements in efficiency are, of course, merely further aspects of the declining cost of capital.

What has been the effect of these changes on rents?—(Considering the matter quite apart from that of changing product prices that have, of course, been notable recently). In the first place, because of a relatively higher elasticity of production, these cost declines have tended to strengthen rents much more in the cotton than in the corn belt counties.

But this is only the first of the effects since there is also the matter of the reapportioning capital and labor that will always accompany changing costs and efficiencies of the two. In all probability the elasticity of substitution of capital for labor is much higher in the cotton counties than in corn belt counties. Corn belt areas as I noted above are already in an advanced stage of mechanization, while relatively small use was still being made of capital in the cotton areas as late as 1930. If indeed, the elasticity of substitution of capital for labor is relatively high in the cotton producing counties much of the now lower priced capital will be substituted for relatively high priced labor. As labor is pushed out and tends to become redundant there is a still further effect. That is, wages of hired hands and standards of living of tenants tend to fall. Relief and social security programs put a floor under wages. Where the relief is niggardly, as it has unfortunately been over most of the southern cotton areas, the fall in wages and living standards is greatest. These wage declines tend to lower the advantage of capital and to retard its further substitution for labor but not until after a considerable substitution has already taken place.

Rents in these cotton producing counties, as this analysis indicates, have tended to be strengthened relatively from three different directions. First, they gained relative to rents in corn belt areas because production was relatively more elastic. Second, they gained not only because of the absolute decline in costs of capital but because this lower priced capital could be substituted for labor under conditions of a relatively high elasticity of substitution. Finally, rents gained further strength as displaced labor was constrained to accept lower wages or living standards. Land value data do something to confirm the relative strengthening of rents in the cotton areas though, of course, many other changes affect such values. Between 1934 and 1938 land values as determined by actual

land transfer data gained approximately 29 per cent in the cotton counties of Missouri while they rose only 20 per cent in the north-western meat production area.

To press the point a bit further, there are two recent studies the data of which are relevant. The first of these is perhaps the less relevant of the two but is cited for the bearing it has on future labor intensities in rural Missouri generally and in the cotton and corn belt counties to which reference has been made above. In making the study⁷ the investigators, Lively and Almack, were concerned with the problems of finding jobs for the rural youth of Missouri that was attaining its majority during the 1930-40 decade. They estimate that 130,000 rural farm males arrived at age 20 years during the period. Only 70,000 of these, they estimate further, were needed to replace workers already gainfully employed on Missouri farms who were lost to agriculture during the decade by death or retirement. That is, there was in the State a considerable replacement surplus of farm workers accruing each year. These surpluses were, furthermore, least in the northern parts of the State and, in an area corresponding to the corn belt meat production counties referred to above, 66 per cent of those arriving at age 20 years were needed to replace those dying or retiring. In the cotton counties on the other hand, only 45 per cent of those arriving at 20 were needed for replacement. That is, where labor intensity is already relatively great, the forces operating to produce further increases in labor intensity were also relatively great.

The second study to which I wish to refer is one relating to the substitution of capital for labor in certain cotton producing counties in Arkansas.⁸ The study concerned six counties representing delta, coastal plain, and hilly upland conditions. In all counties there must have been a surplus of males arriving at age 20 to replace those lost to existing agriculture by retirement and death similar or perhaps greater than the surpluses discovered for Missouri and referred to above.

Despite these surpluses, however, labor intensity in terms of farm families per 10,000 acres of land declined from 1932 to 1938, the years for which data were collected. In this case there was a clear association between the decline in labor intensity and an increasing use of tractors as indicated in figure 2. Thus, for delta type counties and for the years 1932 to 1938 the decline in families per 10,000 acres of cropland for farms upon which tractors were

⁷ The rural population resources of Missouri. Mo. Ag. Expt. Sta. Research Bul. No. 306.

⁸ Cf. McNeely and Barton, Land tenure in Arkansas, Arkansas Ag. Expt. Sta. Bul. No. 397.

employed, was 19 per cent. The contrasting decline on farms not using tractors was only 6 per cent for the same period. These data are impressive if not conclusive evidence of a rising capital intensity at the expense of labor intensity at a time when labor itself must have been redundant. That is a rising marginal efficiency of capital, decreasing interest rates, and a government program that led to an astute elimination of tenants were, in combination, strong enough

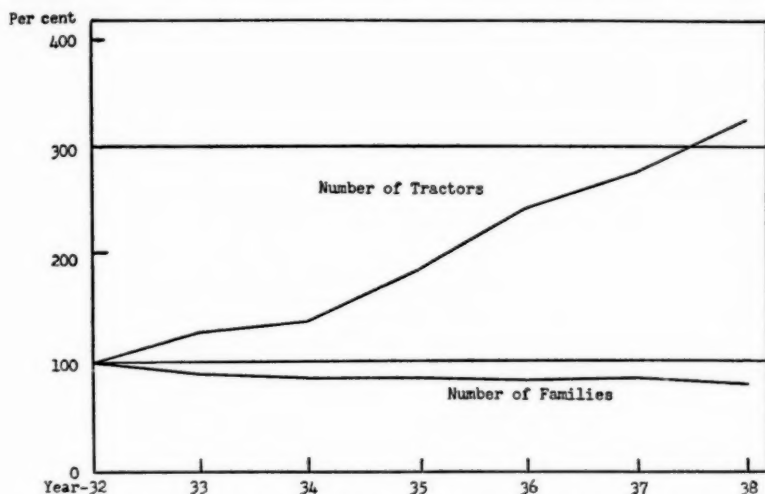


FIG. 2. TRACTORS AND FAMILIES PER 10,000 ACRES OF CROPLAND IN THREE ARKANSAS DELTA TYPE COTTON COUNTIES 1932-1938. Adapted from data by J. S. McNeely and Glen T. Barton, *Land Tenure in Arkansas, II Changes in labor organization on cotton farms*, June 1940. Bul. 397, Arkansas Agr. Exp. Sta.

forces to overcome any tendency to use more labor because of declining wage rates or declining standards of living. It is perhaps true, however, that relief and social security programs may have prevented a decline in wages commensurate with the redundancy of labor.

Rent and Agricultural Adjustment

These matters of intensity, elasticity, and rent can, I believe, be made useful in agricultural planning and adjustment. Time does not permit any lengthy discussion but is perhaps sufficient to permit a somewhat further analysis of the situation that is developing in the South.

The outlets for export cotton in an autarchial world are not too promising, so that the problems of production reduction in regions growing cotton remain acute. That is, large reductions in acreage

must be sought if increasing accumulations of surpluses are to be avoided. The circumstances of the intensity of land use and the elasticity of production under which such reduction must be sought are, therefore, of unusual significance.

To put the matter directly: What is the effect on rent and intensity of a given percentage cut in production under conditions first of high and, second, low elasticity of production? The answer is that the higher the elasticity of production the greater the relative decline in rent and the lesser the percentage reduction of input of the variable elements that accompanies a given cut in production. However, elasticity of production is associated with low fixed costs or low rents and land values. That is the basic factor affecting the elasticity of production for any given farm is the ratio of fixed to variable costs so that, in general, a high ratio of fixed to variable costs means low elasticity and vice versa.⁹ Land values in southern cotton production sections are on the average low in relation to values in the corn belt despite the relatively great elasticity of production of southern cotton farming. (Rents and land values are high in the corn belt, despite low elasticity of production, because of the high level of efficiency of land in that area.) Oddly enough, therefore, as far as outright elimination of land from production is concerned, the absolute cost is low in the case of cotton but high in relation to the rent of land. Conversely, in the case of corn belt land the absolute cost tends to be high, though low in relation to rent. In other words, the absolute cost of production reduction in much of the cotton producing areas in the South is low despite the fact that it is high in relation to rent.

Agricultural adjustment is not only a matter of reducing the production of certain crops, however, but perhaps even more one of shifting land away from the so-called depleting crops and into others called conservative. The costs of purchasing compliance, in production-reduction programs must, therefore, take into account these so-called transfer costs. These transfer costs will be large when the next alternative type of production will yield much lower earnings or rents for the land in question. They will be small when the land may be readily transferred to other types of production the earnings of which are only slightly less than those formerly earned. The nature of these transfer costs needs, therefore, to be given careful consideration if readjustment is to be accomplished expeditiously and equitably.

While by no means uniform, southern cotton farming is much more closely specialized and has far fewer close alternatives than

⁹ Cf. A. C. Bunce, *op. cit.*

does northern corn belt agriculture. That is, land taken out of cotton is likely to have to shift to a much less profitable alternative use or to a much lower rent level than land that is shifted out of corn in the corn belt. The situation with respect to cotton is not unlike that of wheat in the Great Plains area. Cotton culture is not well organized to shift readily to other types of production. It lacks the barns, the fences, and the animals to move easily into livestock production. Traditions of good livestock management are less common than in the corn belt, and cropper tracts are universally too small for livestock production.

With some notable exceptions, soils of the South are not well adapted to general farming. Much of the upland soil of the south is badly leached and has a low exchange capacity. Only with great difficulty could it be made to support a successful diversified agriculture and livestock economy and efforts to make the South into a great food producing area are likely to prove disappointing. Cotton makes different demands on the soils than does the production of food and forage crops and a successful cotton culture is not, a guarantee that a shift to a diversified agriculture is as feasible as might first appear.

This matter of the alternatives available to southern cotton farming has further direct relevance to the elasticity of production. Because it is less well adapted to livestock production than is commonly true of northern areas, southern agriculture does not have the same opportunity to enter the relatively elastic types of secondary production to which reference was made earlier in this paper. Secondary production is elastic because it is much more nearly a combination of the variable elements of production, (the supplies of which are elastic) than is primary production which depends heavily upon inelastic supplies of fertility. Not having easy access to these secondary types of production means that land rents in the south suffer more, and alternative employments for farm labor are more sharply curtailed by production reduction programs than is true in the corn belt.

A great number of relevant additional facts might be brought into this analysis if time permitted. There is, for instance, the question of alternative opportunities for displaced labor that may result if cotton reduction programs are pressed sharply. Here the elasticities and trends of employment in various industries would need to be considered. The developing normal (that is those not carried forward chiefly by the defense program) employment outlets appear to be in types of occupations not easily open to displaced cotton farmers and laborers. Hansen comments that "The new capital outlay for the country as a whole is going, more largely

than formerly, into consumer's capital."¹⁰ Consumer industries are, of course, for the most part located near great concentrations of urban populations and these are, on the whole, at some distance from the South. Otherwise, the expanding occupations are the professional, clerical, commercial and managerial categories, probably still less open to displaced cotton hands. But if these classes cannot find work elsewhere they will compete still more fiercely for the land, and rents will be strengthened while wages sink still lower.

These analyses of rents can, therefore, be made useful as a means of penetrating the inner effects of our governmental adjustment programs and, perhaps of pointing to methods of making their application more equitable than they may now be.

Rent and the Size of Farm

I wish now to turn to a final but quite different problem in rent theory, and one to which agricultural economists have, recently, been giving some attention: that is to the topic of the relationship between rents and the size of farm. There are, it appears to me, two major parts or aspects of this relationship. To begin with, the marginal productivity of land undoubtedly is the most powerful single force in the determination of rent. However, the marginal productivity of the land is not determined in a void and one of the determinants is the size of farm. Farmers recognize this fact and in their competition, for land judge the rent they can pay partly upon the basis of the size of the unit for which they are bidding.

Furthermore, the understanding of the relationship between farm size and rent can be facilitated if farmers bidding for the land are divided into non-competitive groups. At any given time and in any given community or area, there will be farms of various sizes for rent. Farmers will bid for these farms but by no means will all farmers put in a bid on each and every farm. There will be those among the bidding farmers with low labor and management capacity, with a minimum of livestock and farm equipment and limited accumulation of financial capital. These will bid chiefly for the small farms and such bids as they enter for the large farms or even the medium sized farms will hardly be considered seriously.

At the next step will be a group of bidders of modest capacity, with modest equipment and financial backing. These will bid for farms of a somewhat larger size. At a still further step will be found a group of exceptional capacity, supported by unusually large amounts of the better equipment and well financed. These will be interested only in the larger farms. Only on the borders of these groups will

¹⁰ Full recovery or stagnation, Norton Co. 1938, p. 309.

there be farmers interested in virtually the same sized farms and it is no offense against reality, therefore, to label these groups as largely non-competitive.

Now the numbers of persons in these virtually non-competitive groups of bidders need not correspond with the numbers of various classes of farm sizes that are available on the market. Where there is a wide discrepancy the rents of certain classes of farms may rise well above or fall below the average level of rents in the community. If the number bidding for smaller farms tends persistently to be larger than the number of such farms the competitive bidding will lead to such a rise in rents upon such farms that the owners of large farms will be constrained to break them up into smaller units. On the other hand, an excess of exceptionally competent men wishing large farms may at times accommodate themselves by renting and combining farms that are individually too small for their purposes.

Technological developments may, of course, be such as to favor either of the two groups or indeed groups occupying an intermediate position. Furthermore, the numbers in the various groups bidding for the land will be affected largely by the drift of economic affairs generally. If urban occupations persistently offer exceptionally high rewards to men of exceptional capacity (aptitudes for the moment disregarded) the number of these in the higher ranks of bidders for the land will shortly be depleted. Depressions appear also to produce an abnormally high unemployment among the unskilled and for other reasons to increase the ranks of those most likely to be bidding for the small farms.

The net result at any given time will be, therefore, for an average level of rents to be established by the productivity of the land in the general market. From this average there will be deviations for various sizes of farms and the magnitude of these deviations will depend upon demand for the various sizes of farms in relation to the numbers of them available.

This aspect of rent theory brings it into close contact with certain aspects of our agricultural and national policy that should not be overlooked. Many of our agricultural policies are apparently designed to increase the numbers of those in the groups bidding for the smaller sized farms. The program of the Farm Security Administration, for instance, keeps the ranks of the "small farmers" well filled.

Such more or less deliberate policies are, however, much less important than certain other developments and circumstances. The combined high rural fertility rates and backward rural public school facilities have tended persistently to give agriculture a surplus of youth, relatively unskilled in any occupation but somewhat

less disadvantaged, perhaps, in farming than elsewhere. As long as urban occupations at the unskilled level are open these move fairly readily to towns and cities. In serious depressions they either fail to move or return to farms and during the prolonged depression of the thirties many of these have been backed up in agricultural communities for years on end. As a result many of them have grown out of the period when they migrate most easily and there has been built up in many farm areas as the study by Lively and Almack cited above, indicates, an unusually large group from which to recruit the bidders for small farms. Furthermore, this growing surplus of small farmers has, apparently, become greatest, by and large, in the areas of poorer soils and has aggravated still further the problem of poverty in these areas.

Some recent developments particularly of a technological and financial nature have favored those looking for the larger farms but, on balance, even in better land areas the numbers of those bidding for the smaller farms appear to have increased disproportionately. Hence, in Missouri at least it has not been difficult for landlords to find, year after year, renters for farms too small to yield any rent surplus unless the plane of living of the renters were kept at substandard levels or land capital was being sacrificed. A recent Missouri study by Rawlings and Johnson deals directly with the matter.¹¹

On the whole, there are a number of circumstances, as I have intended this paper to reveal, that have conspired in recent years to make our tenant farmers, as a whole, payers of stiff rents. Furthermore, some prospective developments threaten to make these rents even stiffer. Lastly, it seems to me that rent theory has sufficient vitality to enable land economists to contribute something in an analysis of these developments and to project certain measures as correctives if these appear desirable.

¹¹ Brown R. Rawlings and O. R. Johnson, Relationship of productivity of farm units and their ability to pay rent. Mo. Ag. Expt. Sta. Res. Bul. 308.

INSTITUTIONAL ECONOMICS IN LAND ECONOMIC THEORY

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Students at the University of Wisconsin studying economics in the 1920's were expected to study "Institutions" as one of their fields of concentration. Institutions were treated as part of the theory of the distribution of wealth. In addition to distribution according to the traditional factors, it was held that wealth was also apportioned through socio-economic factors or forces—property, inheritance, contract, vested rights and personal conditions. In addition to these five fundamentals or forces of the first rank there were also five of the second rank—custom, competition, monopoly, authority (public or otherwise) and benevolence.¹ This concept of economics was brought to Wisconsin by Richard T. Ely who acknowledges his debt to Karl Knies and Adolph Wagner, the latter making these "fundamentals" the *Grundlegung* of his writings on economics.² Ely's *Property and Contract* was regularly assigned in the course on *Land Economics* and courses and seminars were devoted to the exclusive study of monopoly, custom, competition and landed property or tenure. In the last mentioned seminar the history of the public land policies was given a prominent place under the leadership of B. H. Hibbard, who had studied under Frederick Jackson Turner. Research, actual participation in such activities as rural zoning, and in preparing legislation have brought faculty and students in constant touch with the socio-economic and political institutions within which private and public land-use programs operate.

John R. Commons got his first introduction to the relation of law to economics under Ely in 1888 while both men were at Johns Hopkins University. His long, adventurous career in investigation, actual participation in law making and administration, particularly in the field of labor, caused him to develop further than any one else the field of institutional economics. "I do not see," he writes, "how any one going through 50 years of participation in experiments could fail to arrive at two conclusions: conflict of interests and collective action. Even the state and city turned out to be collective action of those in possession of sovereignty."³ Besides numerous articles his views are stated in his *Legal Foundations of Capitalism*

¹ Richard T. Ely, *Property and contract*. Macmillan (1914), 1: 51-58.

² *Ibid.*, pp. 5-6 and xii.

³ John R. Commons, *Institutional economics*, Macmillan (1934), p. 3.

published in 1924 and the *Institutional Economics* which came out ten years later. Agricultural and land economics students enrolled in Commons' classes or those of his associates with the points of view of Commons.

Thus the institutional "approach" to economics was so well established and accepted that it came almost as a shock to read some of the reviews of the Ely-Wehrwein *Land Economics* taking exception to this concept of economics, especially since some of the Wisconsin students consider the junior author only a "mild institutionalist"!

"Land economics," quotes one reviewer, "is the science which deals with the utilization of the earth's surface, or space, as conditioned by property and other institutions and which includes the use of natural forces and productive powers above or below that space over which the owner has property rights."⁴ The reviewer continues in his own words: "This definition obviously represents the view-point of 'Wisconsin Institutionalism.' Persons not so indoctrinated with this school of thought may fairly question the propriety of designating so loose a concept as 'economics.' A title more descriptive of the contents of the book would be 'Land Utilization, with Special Reference to Economic Aspects.' Only one of its 14 chapters deals exclusively with 'pure' economics."⁵

Certainly definitions of economics, of land economics and the concept of the fields to be included will differ, and every one has the right to his own definition. Pragmatically, however, the land user, the administrator, the land use planner will find that he is obliged to become familiar with the fields represented by the "other chapters" not considered "pure economics." If the economist is satisfied to give merely the facts about prices, inputs and outputs, rent and value as derived from the private management of land, the administrator must turn to other disciplines for most of his information. However, the institutional economist is not satisfied with the concept of economics as "pure economics" but envisages everything as his field that deals with collective action as determining individual action. In other words, "pure" economics operates within the framework of collective action and not in a vacuum.⁶

We begin therefore by defining land as space, the only common denominator of all classes of land from city parking lots to oil fields.

⁴ Quoted from Ely-Wehrwein, *Land economics*, Macmillan (1940) p. vi.

⁵ From the review by R. W. Nelson in *The Journal of Forestry*, Oct. 1940, p. 826.

⁶ It is unfortunate that we have abandoned the term *political economy*. It is wider in meaning and includes all forms of collective and political actions as well as the activities of individuals. The mere fact that the term "economics" has replaced "political economy" should not narrow the content and scope of the field of the economist. The complete title of Commons' book is: *Institutional economics*, its place in political economy.

On this space, below it or above it, are either natural forces and productive powers given by nature, or man-made structures designed to release the economic powers of the land. Some of these natural forces may be free in themselves but must be paid for in the purchase of space; as for instance riparian land, Florida sunshine, or the shady side of a street. Everything but the space and some of the natural features are "destructible." Fertile soil, although provided by nature, "behaves" about the same way as a building erected by man; both can be destroyed or made more efficient by the action of man. Had Ricardo not defined land as the original and indestructible powers of the soil he would have come close to defining land as space.

Space, however, is a mere physical concept; "economic space" is the result of situs and location. Economic space is not a fixed quantity nor does it determine the quantity of output. It becomes the basis for the theories of location of von Thünen, Alfred Weber, Christaller and Brinkman. However, economic space itself depends upon the institution of property; it is the basis for measuring land and by law we assign rights of proprietors, tenants and creditors to a given space. The minerals below and the air above either do or do not belong to the owner of the surface depending on constitutions, statutes and the courts.⁷

The concept of property as a part of the field of economics seems to be the stumbling block for the "pure" economist. Nevertheless, it is the very foundation of institutional economics. Ever since John Locke, economists have differed on the definition of wealth as the *material* thing vs. the *ownership* of the thing. "Property as a corporeal fact," says Commons, "is the exclusive holding of physical things because they are scarce; rights of property are the collective securities, compulsions, liberties and exposures that go with this exclusive holding . . . While scarcity is ultimately . . . a scarcity of food, clothing, shelter, and land, yet for the business man, working man, creditor, debtor, landlord, tenant, scarcity is a scarcity of proprietors . . . It is this proprietary scarcity for which prices are paid, and the price is not the price of the food, clothing, shelter, or land—it is the price paid for the right . . . to have the government exclude everybody else from the said food, clothing, shelter or land."⁸

⁷ "So long as the ownership of oil is determined by vertical boundaries, arbitrarily dividing a geological unit or reservoir into many portions, just so long will there be hurried production with all its train of losses." "The United States, through the Geological Survey, has spent millions of dollars in learning and proving that oil does not occur in 160 acre tracts, yet tries to force oil to do so by fiat, or, at least ignores legally the fact that oil is migratory." Gilbert and Pogue, *Petroleum, a resource interpretation*, Bul. 102, (6) U. S. National Museum, p. 56 and 61, footnote.

⁸ Institutional economics, *op. cit.*, p. 169.

Let me illustrate the strategic position of property by the situation in Madison Parish, Louisiana.⁹ There is a sharp demand for land because of the displacement of farmers through the reduction of cotton acreage and increased mechanization as well as "backed up" population on farms. Land has become available through better protection from floods, removal of timber, and a limited amount of drainage. It is costing about \$20 an acre to bring the land into use, plus about \$8 more per acre for structures.¹⁰ The income to pay these costs becomes available in direct proportion to the area cleared and particularly the area in cotton. The average settler clears about ten acres the first year but progressively decreases this activity to less than half of this acreage in his fourth and fifth year, due no doubt to the fact that he uses his time and labor on crop production instead of clearing more land. Farm income averages only \$180 the first year as compared to \$452 the third year, and \$196 with 2.5 acres of cotton as compared with \$737 when the farmer has about 16 acres in this cash crop.¹¹

So much is "pure" economics. It would seem that the mere cost of clearing and preparing the land should be a sufficient price to pay for it in order to leave a sufficient amount for an adequate standard of living for the "new ground farmer." However, proprietary and institutional factors rule otherwise. About 84 per cent of the potential farm land is owned by persons and corporations living outside of Louisiana, a considerable acreage being owned by a British corporation. These owners determine prices and sales policies. They offer two forms of contracts in addition to cash sales. Land can be purchased with a small down payment and the remainder in four or five annual installments, interest at 6 per cent from the date of the contract. The average price asked for raw land under the time payment plan was \$22, ranging from \$5 to \$63 per acre. Comparing the possible income of land still in the process of being cleared with the average annual payment of \$214 running for four years, it is no mystery that only one-half were keeping up their payments, and are doing so with the farm income augmented by outside employ-

⁹ Troy Mullins and B. M. Gile, Economic and physical factors affecting new-ground farmers in Madison parish, Louisiana. Dept. Agr. Econ., Louisiana State Univ. Mimeo. Circ. 12. (July 1940.)

¹⁰ Assuming a fair wage for farm labor the average cost of preparing the land for the first crop is \$14.80 plus \$5.00 for cash outlays. About $\frac{1}{4}$ of the "new ground farms" had cash expenses of \$8.10 per acre for hired labor. The \$20.40 average per acre cost does not include fencing, drainage ditches or equipment. Mullins and Gile, *op. cit.*, pp. 15-17.

¹¹ Triple A payments do not help the settler as he clears more land. They are based upon the first crop when the farmer has 10 acres cleared and about 5 acres in cotton. The same institutional factor that brought the settler to the new ground is operating against him here. *Op. cit.*, pp. 22-23.

ment, accumulated savings and credit, much of which is furnished by the Farm Security Administration.

Under the option-lease plan the farmer agrees to clear and put into cultivation about one-fourth of the area optioned (average 44 acres) during each of the first three years, put up the buildings, fences and make other improvements. During this period he does not make any payments nor pay taxes. After the third year, however, he pays taxes, makes payments running over nine or ten years with 6 per cent interest on the money owed. The striking fact, however, is that these farmers are charged \$45 an acre for land, more than double the price demanded under the time-purchase plan, ranging from \$35 to \$100 per acre. Again comparing the possible income with the \$251 average payment required annually for ten or more years it is clear that only the exceptional man can acquire a farm in this way.¹² The company has nothing to lose. "Should the lessee be unable to make any of the payments, or otherwise fail to fulfill the terms of the contract, the lessor has the right to repossess the land with the attached improvements without compensation to the lessee."¹³ No deed is given until after the sixth payment. What is happening is that the "new ground" farmers are investing their savings and labor in producing land which they will never own "in return for a place to live and support their families because better opportunities were unknown to them."¹⁴

How much of the price paid for raw land is "true value" and how much is due to the withholding power of the owners and the ignorance, lack of bargaining power and dire need of the "new ground" farmers? There is no risk to the company; even if the settler should abandon the land without a payment, any clearing or structure he leaves behind merely adds to the sale value of the land. Now it is an "improved farm"—the "old army game" of all the cut-overs! The "right to fix prices by withholding from others what they need but do not own," says Commons, and obtaining "wealth by controlling the scarcity of services and enforcing contracts to pay these scarcity values" is intangible property, recognized as such by the Supreme Court in 1890. Veblen introduced the same idea into economics which for him ended in Marxian extortion and exploita-

¹² Forty-eight of the 79 settlers interviewed had the option-lease agreement, 44 with one land company. Only a few settlers have been on the land more than three years; of the seven that have, three have already changed to a lease contract. The unequal bargaining power is shown by the fact that in "only exceptional cases had the lessee read his contract thoroughly," others do not understand the specifications and in several cases there is only a verbal agreement. *Op. cit.*, pp. 13-14; 20.

¹³ Mullins and Gile, p. 13.

¹⁴ *Op. cit.*, p. 21.

tion whereas Commons' notion of intangible property "ends in the common law notion of reasonable value."¹⁵

On the other hand, once the land is in the possession of farmers and small home owners all forms of withholding and "monopoly" cease. The logical outcome of our public land policies was the widespread diffusion of landed property which has led to intense competition and the submergence of the farm and home; in the words of Abrams, "land has become the heritage of the underprivileged."¹⁶ Abrams holds that land nationalization is probably closer than we think, not because of the excess profits from land that Henry George feared but "for the opposite reasons that land today yields excess losses."¹⁷ He feels that land has been engulfed in the change from an agrarian to an industrial and commercial civilization with intangible, incorporeal property playing the predominant role rather than land which is corporeal and tangible. Land is now in an entirely new economic and institutional world, yet the old customs, traditions, the laws relating to taxation, mortgaging and financing still reflect our agrarian and post-feudal heritage.

It is impossible to do more than cite a few other examples of the influence of property relationships on the utilization of land. The ribbon farms which were the result of the feudal system and the French inheritance laws made for uneconomical management and produced an institutional scarcity of land when most of North America was a wilderness. Tax delinquency can keep land out of use for years while suspended between private and public ownership. The mere difference in laws regarding water rights may lead to an economical use of water or the wastage of this precious resource in an arid land.¹⁸ Through the collective action of zoning the permitted and prohibited uses of land within a given district are determined by law within the limits of reasonableness. The rural zoning on the farm-forest fringe has been carried out with little relation to the question of submarginality as judged by the usual economic standards. The criteria have usually been institutional—the cost of public services, and the costs of isolation in relation to relief and legal residence of the settler.

Much more thinking needs to be done on the question of submarginality even on the "purely" economic side. Tests that can be applied to a commercial agriculture fail on the forest-farm fringe

¹⁵ Institutional economics, *op. cit.*, pp. 3-4; 237.

¹⁶ Revolution in land, Harpers (1939), p. 7.

¹⁷ *Ibid.*, p. 188.

¹⁸ Ray P. Teele, The economics of land reclamation in the United States, A. W. Shaw Co., Chicago (1927), p. 268-270.

where part-time farming, subsistence agriculture and in some cases residences are found without any visible signs of farming at all. Shall we short cut the argument by saying that land is submarginal if, when fully employed, it does not yield a decent living? But is not a "decent living" a useful economic concept only when it embraces institutional considerations? Is the land in Madison Parish, Louisiana, submarginal? Soil than can yield 416 pounds of cotton to the acre is not considered so.¹⁹ But does not the cost of clearing, and drainage, which if added to the waiting costs before 30 acres of land can be cleared, exceed the value which 416 pounds of cotton per acre per year can pay for? Is the situation changed if the land is cleared and drained by collective action as in the Matanuska colony? Is the land submarginal because society permits corporations to charge excessive prices for uncleared land? Are the reduction of public costs, more harmonious land uses, and other political and institutional factors to outweigh private factors in determining whether this land should be used for forests or for farms?

Institutional economics also centers attention on the *transaction*. The transaction is an observable act based upon not what people say or think, but what they do. It is directly related to property. "The transaction is a proprietary relation," says Commons, "a relation between Man and Man—whereas the commodity, where ownership is omitted from its definition, is a relation between Man and Nature—either the physical relation of the production of wealth, or the psychological relation of satisfaction of wants."²⁰ "Transactions . . . are not the 'exchange of commodities' in the physical sense of 'delivery,' they are the alienation and acquisition, between individuals, of the *rights* of future ownership of physical things, as determined by the collective working rules of society."²¹ The word *future* is also important in this definition.

Land economics deals primarily with three transactions: (1) transferring land by sale, gift, or inheritance, (2) renting, (3) credit transactions, in which case the mortgage or other evidence of indebtedness is involved. These three transactions are as old as recorded history, being found on the ancient tablets discovered in Mesopotamia and were made the subject of collective action by the Code of Hammurabi 800 years before Moses. They merit much more study than we have given them, at least from the standpoint of a study of transactions as involving the power of one or the other parties to a "deal" to withhold, dictate terms, or "ration capital." T. W. Schultz has pointed out that "the conventional supposition

¹⁹ Mullins and Gile, *op. cit.*, p. 17.

²⁰ Institutional economics, p. 118.

²¹ *Ibid.*, p. 58.

is that there is available to the firm an unlimited supply of capital at going prices" and therefore the "firm" is always in the position to make ideal input-output combinations of the factors.²² Yet by rationing the inputs which may be purchased, the output which may be sold, or the amount of capital which may be hired, one form of tenure may be favored as compared with another. "Under existing institutional facilities a farmer is allowed to rent a larger volume of capital than he is permitted to borrow," and thus tenants are being retarded in their efforts to become owners.²³

It is a pertinent observation that land appraisers, both urban and rural, are interested in actual transactions, either sales or contract rent, as the basis for their appraisal work. As practical men who stake their reputation on their judgment of values they appear to pay very little attention to "pure" economic rent.

A glance at the title of more than 300 articles which have appeared in the *Appraisal Journal* during the eight years of its existence shows that only six articles have the word *rent* in their titles; one of them discusses "economic rent vs. contract rent" and only one deals with Ricardian rent. The *Journal of the American Society of Farm Managers and Rural Appraisers* in its eight numbers to date has had no article whose title indicates that the writers discussed economic rent in any form. Wm. G. Murray in his book on "Farm Appraisal" goes directly to contract rent as the basis for determining land values, in other words, to an observable transaction. Where land income has to be obtained on owner-operator farms he arrives at "rent" by subtracting the amount of all expenses, (including an allowance for unpaid family labor and interest on the investment in equipment) from the total income, without the Ricardian incantations of "no rent land" and "intensive and extensive margins."²⁴

However, the rent and value arrived at by using contract rent need careful consideration of the forces behind the contract. The pressure of population on land becomes translated into one-sided transactions even in a nation with an apparent surplus of land. It is reported that there are "twice as many families trying to make a living off southern farms as in 1860 with fewer acres actually in cultivation" and that 24,700 families were unable to rent farms in the Corn Belt the past year.²⁵ Under such conditions, will there be much

²² T. W. Schultz, Capital rationing, uncertainty, and farm tenancy reform. *Jour. Pol. Econ.*, June 1940, p. 313.

²³ *Ibid.*, p. 314.

²⁴ Wm. G. Murray, *Farm appraisal*, Iowa State College Press, Ames, Iowa, 1940, pp. 97-98.

²⁵ H. M. Coverley, The dilemma of the land hungry. *Land Policy Review*, Sept. 1940, pp. 22, 23. Much more needs to be known about customary rents, traditional non-economic payments and services between landlord and tenant.

relationship between contract rents and those which appear to be justified by the prices of farm products?

Finally, a word about the conservation problem. How far can we get by thinking in terms of "pure" economics? If we accept the statement that conservation involves "reducing the act of consumption or exhaustion for the avowed purpose of benefiting posterity" immediately the problem of time preference appears.²⁶ On the one hand it is considered to be the stumbling block to conservation by private enterprise and on the other it is considered to be of little importance or non-existent when we try conservation through collective action by government ownership. It would also seem that time preference works both for and against conservation since in a mature society there should be just as many people and corporations looking for safe future incomes as there are people whose time preference is high. As a matter of fact, the best examples of soil conservation, conservation of wood lots, wild life and forests seem to be independent of profit and loss considerations and be motivated by institutional, psychological and even irrational purposes when judged by the economic yardstick. In fact I must confess that the attempt to use the Zimmermann definition quoted above to cover the entire gamut of natural resources from wild flowers to petroleum is not successful; it stretches the definition till it cracks!²⁷ The land economist must not only consider human institutions but also have some understanding of biotic, ecological relationships and the impact of man on his environment in so far as these affect the relationship of man to man in the efforts of men to live collectively.

In conclusion, it must be said that there is as yet no complete body of theory setting forth in a systematic fashion the "principles" of land economics, partly because land economists have been so busy with direct attacks on land problems that they have not had much opportunity to convert experience into theory. However, that is exactly the way institutional economics has developed, theory grew out of practice. Land economics is a rapidly evolving discipline with changes in the relation of law to economics constantly taking place; for instance, the recent decision of the Supreme Court redefining the concepts of navigation and commerce will have far-reaching effects on the legal position of the states vs. the federal government, and will redefine not only navigation, water powers, irrigation but also affect flood protection and watershed development on "every branch and creek" of the nation.

One of the tasks in the near future is the synthesizing of land

²⁶ Erich W. Zimmermann, *World resources and industries*, Harpers (1933), p. 792.

²⁷ Ely-Wehrwein, *Land economics*, *op. cit.*, Chap. 14.

economics which is at once price and institutional, into a rounded body of theory. It should be emphasized that institutionalists have no idea of supplanting price economics, the law of supply and demand, intensive and extensive margins and the competition of land uses. Their work is to supplement, or better still, to seek the reasons behind "pure economic behavior." As Commons has stated the case, "The 'law of supply and demand' or, as we should say, the Principle of Scarcity, is inevitable, true enough, and like death or the law of gravitation, cannot be avoided. But what we want is to control, if we can, or to find out who it was that controlled, death, gravitation, and supply and demand."²⁸

DISCUSSION BY C. I. HENDRICKSON

Agricultural Adjustment Administration

It may appear like jumping into the middle or near the end of Professor Hammar's paper to state that he is to be congratulated for showing the relation of the theory of rent and some of the public programs now being carried out. There may be those who question or even disagree with his statements but it seems to me that we must agree with him that the land economist should not neglect to use his knowledge of economic theory as it applies to the use of land to appraise public programs and in the light of such an appraisal to suggest changes in these programs.

I have no question to raise with Professor Hammar's position that rent is affected by both the capacity and efficiency of any given tract of land. For many of us he could have brought out more fully just how the distinction between primary and secondary intensity affected rent. This may have been brought out by Dr. Bunce's paper to which he referred.

The point that type of farming, rather than the margin of cultivation of an individual crop, determines rent is well taken. The rent surplus from a tract of land is the result of the costs and product from a given combination of enterprises.

There is a point I would like to introduce into the consideration of this subject which I did not get from Professor Hammar's presentation. That is the effect of variation in size of the input elements. The size of these elements affects rent both through the effect on intensity and on what he has called the elasticity of substitution. Should a piece of machinery adapted to large level farms be introduced it would have a different effect upon the rent of land to which it was adapted as well as to the land to which it was not adapted than would for instance a smaller type of the same kind of machinery adapted to smaller and perhaps rougher farms. Likewise the rent of land in a community where additional day labor is available might rent for more than a farm similar in all respects but where such labor is not available.

Another point which might well have further consideration is the ques-

²⁸ Institutional economics, *op. cit.*, p. 101.

tion of elasticity of production and elasticity of substitution. With respect to elasticity of production might not the effect upon rent of an increase or decrease in production be different depending upon whether obtained on the intensive or extensive margin of cultivation?

Size as well as type of farm, as Professor Hammer points out, affects rent. However, are farmers quite as stratified as he suggests when he divides the farmers into non-competing groups? Is it not more nearly true that farmers in their managerial ability, capital assets, etc., form an array rather than distinct classes? Competition is probably greater in certain sections of the array than in others.

DISCUSSION BY JOHN ISE

Kansas State University

I find myself in substantial agreement with Professor Wehrwein, on all important points, and the best I can do is to suggest a few illustrations that support his general thesis.

The institutionalist emphasizes tradition and habit as important qualifications of the concept of the economic man, the rational man; and nowhere, it seems to me do we see the importance of this more clearly than in the history of the conservation movement. For three hundred years the great American game has been not football or baseball, but land speculation—the settlement or purchase of lands in the hope of being able to sell at an advance later. In this fundamental economic adventure we developed other American traditions, one of which is that of “boasting”—lying about the home town or the home state, in the hope of thus advancing land values; and we came to look upon growing population as the one important index of social progress. In these traditions we find some of our most serious obstacles to land policy reform of any kind. It is often difficult to make any critical and intelligent survey of conditions, because any criticism is resented by the public as “bad for business”—that is, bad for land values. Even where such a frank acknowledgment of faults would be the first step toward improvement, and therefore beneficial to all, it will be opposed by many people.

We find such a situation in our efforts to restore the “dust bowl.” The truth of course is that the only solution for the troubles in the “dust bowl” is the restoration of the grass cover in much of western Kansas; but that would mean a grazing economy which would call for a smaller population—which is quite contrary to American ideals. Quite unconsciously, no doubt, the people prefer a large number of people living badly to a smaller number living well.

It is clear that many of the farm communities of the United States, and particularly the states of the west-central section and the South, would enjoy a higher standard of living with a smaller population; but few economists would dare say so. Perhaps the significance of this question in the public mind may be seen in the results of the last election. Every state from Kansas north to the Canadian boundary—Kansas, Nebraska, and the Dakotas—lost population, and all these states voted Republican. The

New Deal had failed in the most important end of statesmanship—to bring an increased population.

Perhaps the most irrational of all traditions may be seen in the general public's interpretation of the word "development." In their three hundred year sweep westward, the American people have been indefatigable "developers." Now one may develop muscle by exercise, he may develop an urban addition by building streets and houses; but he can hardly be said to "develop" an orange by sucking it, a forest by burning it, a farm by plowing it and watching the soil wash down the creek. In the American mind these have all been much the same however; a fully developed oil field is one from which the oil has been taken; a fully developed timber area is one in which the trees have been destroyed; a well developed country would presumably be a barren waste. A common complaint against some government agencies is that they have slowed down the "development"—that is the destruction—of some of our natural resources.

In many of our land policies tradition, even the most absurd sorts of tradition, has played a leading, and often a disastrous role. From the beginning of settlement under the pre-emption and homestead acts, the notion has been that settlers would build homes—on all kinds of land, regardless of its fitness for agriculture. They were to build homes on oil lands, coal lands, timber lands, desert lands—all kinds of lands—in tracts of 160 acres. It took decades for Congress to find out that different kinds of lands called for different sized tracts, and that not all kinds of lands were suitable for homes.

Tradition has been to allow land prices to be fixed in a free market. But this system may work disastrously, as in our tenancy situation.

Professor Wehrwein correctly suggests that conservation does not always interfere with present exploiting interests. Occasionally, indeed, conservation could be carried on with benefit to exploiting interests, if not to the present-day consumers. Our rapid "development" of oil reserves, and consequent waste, has often been disastrous to the oil companies; yet it has been impossible to provide for slower and more orderly exploitation. While thousands of wells were being capped, thousands of new wells are being drilled. Too rapid cutting of timber has not only wasted forests unduly, but has ruined many lumbermen; yet it has been impossible to do much to slow down the rate of exploitation. Even the government holds the threat of monopoly prosecution over attempts to restrict timber cutting—which is one of the most obvious ways of conserving timber.

LEGAL ASPECTS OF LAND TENURE

MARSHALL HARRIS

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Man's relations to land are of two major types: land use and land tenure. The first refers to the use made of land in supplying human needs; the latter includes the relations among men, determining their rights and responsibilities in land.¹

Legal aspects of land tenure are concerned with the laws of property in agricultural land. The law of property may be found in constitutional provisions, statutes, court decisions, common law, or local custom. The laws governing land tenure, whether they concern the State or the individual, the owner or the tenant, the trustee or the mortgagee, or the heir or the squatter, are laws of property, concerned with the distribution of rights in land. Any adjustment in our system of agricultural land tenure represents an adjustment in the position of agricultural land as property. For example, a rural zoning ordinance always changes the rights of the holder of a piece of land; an easement for an electrical transmission line divides rights in land between the owner and the public utility company; and the Kansas law requiring that the landlord compensate the tenant for certain unexhausted improvements under specified conditions reduces the landlord's rights in the land.

The tenurial relationships established among men are social phenomena and are never static; they are ever changing. In fact, man's economic, social, political, and religious history is replete with terrific and sustained struggles for a better and better distribution of the rights and responsibilities in land. These struggles have always had as their objective the readaptation of the man-made tenure system to the needs of the time. The battle, of necessity, has been terrific because of the reluctance of those in power to yield to change, and has been sustained owing to the slowness with which significant changes in fundamental arrangements are made even after the need has been recognized. But during the centuries the struggle has been carried on against the power of vested interests and in spite of the costliness of what are inevitably trial and error methods and the dead weight of cumbersome legal traditions. During the major part of our national life, however, owing to our preferred economic position and to numerous programs giving opportunities to or pacifying the disadvantaged, adjustments in our system of land tenure have been exceedingly few and we have tended to fall behind in light of the many new problems facing us.

¹ George S. Wehrwein, Research in agricultural land tenure—scope and methods. Social Sci. Res. Council, Bul. 20, April, 1933.

Recently, however, we have begun to stir from our lethargy. The social engineers and political philosophers of today, are beginning to study the powerful influences of our land tenure system and the law supporting it upon the economics of farming. They recognize the necessity of supplementing traditional educational procedures and the several types of subvention with regulatory measures. Already, they have achieved some adjustments of which a few will be mentioned presently.

For the moment, we will inquire into the attributes of our land tenure law—that law governing the distribution of the bundle of rights in land. It would be presumptuous on my part, however, to try to present all the laws governing land tenure. At best only a few high points of our ownership and tenancy systems can be touched. The general principles underlying tenure law, including freedom of action and societal restrictions, will be presented. Then, some of the more obvious shortcomings of our tenure system and some of the difficulties impeding adjustments will be discussed.

This paper is written from the inquisitive point of view even though but few questions will be asked. Many of the positions are tentative, subject to change upon more complete examination. The tenure system will be examined with the same dispassion as the mechanical engineer studies an airplane motor. The experiences of England and other European countries will be cited in appropriate places with no thought of foreign isms. Revolutionary adjustments may be alluded to with no implication that revolutionary action may be appropriate. We should remember, however, that our system of land tenure was hurriedly pieced together when the founding fathers were full of the spirit of '76.

Attributes of Tenure Law

There is no land tenure in a Crusoe economy, and no tenure law. There is not the problem of distributing rights in land, and, consequently, no need for legal protection. In the tooth and fang economy of unorganized society the system of land tenure was indeed crude, since *might* made *right* and the strong "owned" all the land that could be held by the sword. As social organization becomes more complex, as more rights are placed in the hands of individuals, and as these rights are distributed more widely among all the members of society, the need for the protective arm of the law becomes greater. Protection is one of the important attributes of law, not only because it is the basis of property, but it is the fundamental bedrock upon which our freedom of action and liberalism stands.

Another attribute of our land tenure law is closely related to pro-

tection but should be distinguished from it. It establishes minimum standards, the maintenance of which society requires of the individual. The numerous regulations regarding use to prevent waste and the spread of disease are good examples.

Another characteristic of law is that it makes it possible for society to establish desirable programs, the objectives of which are impossible of accomplishment under individual action. Adjustments in land use under the conservation programs are pertinent examples of the value of collective action that proved impossible under earlier endeavors dependent completely upon individual initiative. Another recent example is the Iowa law establishing a minimum period of notice for the termination of agricultural leases. The establishment of this principle was obviously dependent upon collective action.

A further attribute of land tenure law is that it may be either restrictive or facilitory. Many of the exercises of the police power are restrictive; they prevent the operator, whether owner or tenant, from doing completely as he pleases. Many of the rules covering transfers are facilitory; they make it easier for the parties to consummate their desires. Some laws are restrictive to one party and facilitate the action of another. A good example is the landlord's lien; the lien restricts the freedom with which the tenant can dispose of the produce of the land and makes easier the collection of rent by the landlord.

Another characteristic of our tenure law is that it may be either directory or mandatory. This flexibility is of considerable importance to the social engineer. An appropriate example, involving this characteristic and the way it operates is the introduction of compensation for improvements in England. Almost a century ago, when the English tenancy system was being examined, much as our tenancy system is under scrutiny today, the Parliament enacted a law that provided that the outgoing tenant should be permitted to claim compensation for improvements effected by him. But the law was permissive and not mandatory—it directed the landlord to pay the tenant for improvements but permitted him to force the tenant to contract away this right. This course was followed by the mill run of landlords and the law became practically inoperative. Later, however, the Parliament reenacted the law with a provision that the tenant could claim compensation, provisions in the contract to the contrary notwithstanding. The Parliament did not want to infringe upon the oft-vaunted freedom of contract but found that such was necessary in order to attain desirable objectives.

Some General Principles Underlying Tenure Law

Before it is possible to assess the strengths and weaknesses of our land tenure law, it is necessary to explore briefly some of the principles upon which it is based. Many of these principles are deeply rooted in the derivative property system of feudal England under which the rights in a particular piece of land were "derived" from someone higher up in the hierarchy. Thus, several individuals could hold rights in the same piece of land. The usefulness of the feudal type of organization is attested to, not only by its long life as a system of land tenure, but as the broad ambit within which operated the economic, social, and political institutions of its day. But its incidences finally broke it down. Its imprint, however, will long remain. We will continue to follow the principle of permitting the separating of the many rights in land among several individuals.

The other strain of our tenure concept is a heritage from the abstract classical concepts of the scholastics of the Roman era. In ancient Rome, there were many tribes and each tribe developed its own concepts of property—a combination of a derivative and a communal property system. But when a nation emerged from the combination of these tribes, some rules had to be promulgated to govern, not the everyday transactions between fellow-tribesmen, but the transactions between members of different tribes. The Roman law of property arose to fill this need and was based on a concept of completeness. A spear, or later a piece of land, was a unit complete in itself. One tribe "owned" it completely; it did not belong in part to several tribes. The idea that all of the members of the tribe might have interests in it—as they could under tribal custom—was ignored. The concept of completeness of ownership—of the inseparability of ownership into a bundle of distinct rights—came to be known as allodial property, as contrasted with derivative property.

Our system of land tenure is an almost incomprehensible admixture of these two concepts. It is the hybrid offspring of separability and completeness. The idea of completeness permeates our fundamental concepts of individual ownership. In America the land held in private hands is allodial land, owned in fee simple absolute, theoretically from the heights of the heavens to the core of the earth.

The rights to buy and sell, to inherit and bequeath, to subdivide and aggrandize, to use and abuse are the essence of allodial property. By the use of contracts of leasing, by mortgaging, by grants of easements, or by any procedure for granting a lesser estate than fee simple absolute, rights in land are parcelled out to one or more individuals; these attributes are the essence of derivative property.

These rights are granted subject to the paramount right of the owner; they are derived from the owner and revert to him.

But ownership is not absolute, as may be implied from the above. The owner holds subject to the rights residing in the State. The state has the right to tax, to condemn, and to police. Of course, these powers are safeguarded by constitutional provisions. These safeguards are not entirely clear, but they are absolute within certain spheres. Regardless of the theory accepted, the division of rights between public and private smacks of derivative property.

Thus, we pick up the threads of derivative and allodial property. They are mixed in every fiber of the warp and woof of our tenure garment. But there are other threads that we should examine, threads that are intertwined with and a part of these two general principles.

Freedom of Contract and Laissez Faire

As early as the 17th century new tenure problems and new philosophies were arising in many parts of England. Trade and commerce were expanding rapidly and many legal and economic adjustments were taking place. An examination of the weaning away from the incidences of feudalism during this era is a study in freedom of contract in the field of property. But many shortcomings of the tenure system were not eliminated.

A century later, England was again adjusting her land tenure system. *Laissez faire* was the essence of the new era. It was reasoned that if the individual were free to do as he pleased self-interest would cause him to regulate his domestic economy so as to secure optimum returns; that domestic efficiency would result in national efficiency and wellbeing when all of the domiciles were combined into a national unit.

The *laissez faire* doctrine of the early classical school was popular with the rising commercial class, and along with tariff reforms and the removal of restrictions on trade, adjustments in land tenure law were pushed through Parliament. The new legislation concerned itself with procedures more than anything else: the method of collecting rent was made more efficacious, formalities incident to a sale of land to expedite transfer were established, and a summary method of evicting tenants who held over after their terms expired was set up in order that the owner could be free in his renting procedure. But, very few substantive laws were passed. England was experiencing much the same thing that we later passed through during our rapid national expansion. Smith and others cautioned that some control over individual action was necessary, but these warnings were ignored, and as a result statesmen pursued the path

to national wealth without sufficiently considering the path to national health (paraphrasing Sir William Holdsworth).

Laissez faire and freedom of contract went hand in hand. But this new freedom could not stand on its own even with the support of the due process of law. It had to be sustained by statutes to enforce the contract so freely entered into. Earlier, rents were supposed to arise out of the productive capacity of the soil and if there was little or no production there was little or no rent. But the concept of freedom of contract ignored this ancient principle, and held that rent is what the tenant contracts to pay. The development of law and economics is close here. The landlord's lien, had its origin in this freedom. But later, exemption laws were enacted to protect the free economic man from contracting for starvation. Similarly, the modern eviction procedure was incorporated into law, for one had to have the right to dispossess if he would be free to act. And later, freedom of dispossession was likewise restricted.

The old maxim, *caveat emptor*, let the buyer beware, is a good example of a principle of law giving power to freedom of contract. This principle runs through both ownership law and tenancy law. Under it the lessee or the purchaser is presumed to take the land only after thorough and intelligent examination and with complete freedom of choice. Neither can assert a right to rescind the contract, in whole or in part, because the premises are not suitable for the purposes for which they were bargained. Even shortcomings that could not be detected before the property was used are not the responsibility of the seller or the lessor.

But freedom of contract is based upon one concept that is frequently overlooked. Freedom presupposes equality—equality of bargaining power. In the absence of well-established rules of the game, there can be no freedom if the two parties are not equals. It is interesting to note that under the present inferior bargaining position of tenants in many areas, a recently suggested adjustment in the landlord's lien would go back toward the principle that rent arises out of the soil and would give the landlord a lien only for a portion of the products produced: thus, tending to soften the impact of unequal bargaining power.²

Societal Restrictions

Space will not permit lengthy consideration of other principles flowing from completeness of ownership and freedom of contract. Attention should be turned to some restrictions that society has placed upon the freedom with which the individual can use and

² Report and recommendations of the farm tenancy committee, Iowa State Planning Board, Des Moines, Iowa, October 1938.

enjoy land. These restrictions generally are imposed under the police power, and are in addition to the rights residing in the State to tax and condemn. The individual's rights, of course, are protected by due process of law. The due process clause is in effect a powerful influence in the maintenance of the *status quo*, and a necessary part of our legal structure.

The very vagueness of the scope of the police power and due process clause makes it difficult to assess the magnitude of existing and possible restrictions on the freedom with which the individual can administer his rights in land. Although the due process clause is designed to protect freedom of individual action, whether it be of an owner or a lessee, from interference by the State, this protection is not a prohibition. The State may restrict this freedom through the use of the police power where necessary to protect the public health, safety and morals and to promote the general welfare. In an earlier issue of the journal published by this Association, Glick pointed out the general type of regulations of land use sustained by the courts. These include prohibitions of the waste of gas and oil, requirements for removal of underbrush to prevent fires, necessary destruction of crops to prevent spread of disease and pests, and regulations concerning grazing near municipal water supply.³

In addition to these types of restrictions, the famous maxim, *quicquid plantatur solo, solo cedit*,⁴ is instructive. Interpreted liberally it means, "that which is attached to the premises becomes the property of the owner." It represents one of the ancient rules preventing tenants from removing fixtures and improvements effected by them. This principle was developed in England centuries ago and is still followed rather blindly in many jurisdictions in this country as far as the agricultural tenant is concerned, although its application to commercial urban tenants is being interpreted liberally.

Lord Ellenborough in England, early in the 19th century, made the principle inapplicable to urban tenants, admitting that to encourage trade and business it might be proper to make a liberal interpretation allowing urban tenants to remove trade fixtures. Yet he held the tenant farmer strictly responsible for the value of all improvements removed from the fee. A half century later, England abandoned the distinction between agriculture and industry and permitted by statute the removal of fixtures and improvements erected by agricultural tenants. The situation in many jurisdictions in the United States is similar to that in England a century ago. Here again the relation of law and the day-to-day activities of farm

³ Philip M. Glick, *The soil and the law. I*, JOUR. OF FARM ECON., 20, May 1938.

⁴ Herbert Thorndike Tiffany, *Real property*, Vol. 1.

tenants is close: witness the similarity between owners and tenants in some sections of the country in regard to conveniences that can be removed when they leave the premises and the great disparity between the two groups regarding structural improvements that must be attached to the property.⁵

The present law covering waste offers one of the most interesting and instructive studies of our restrictions on freedom of land use. This old common law rule was given statutory recognition in the 13th century when it became unlawful to waste property under certain conditions. At that time waste was interpreted as wanton damages such as cutting trees and destroying buildings. This statute was enacted to prevent a person holding a life estate from damaging the property in which he had only a temporary interest. This old common law rule, however, grew into new fields. By a later judicial decision, it was held that all agricultural leases implied a covenant to cultivate according to the rules of good husbandry. Likewise, the mortgagor is now supposed not to dissipate the mortgaged premises.

This restriction on the freedom with which property can be used is a part of the land tenure law of this country today. In fact, in some jurisdictions the ancient rule against waste is copied almost verbatim, including punitive damages triple the amount of the loss. It is interesting to note that although the rule against waste touches the tenant, the mortgaged owner, and the holder of a life estate it has not been expanded to include the unencumbered owner. To be sure, it has proved relatively ineffective for all types of tenure under the spell of freedom of action during our period of rapid exploitation. It will no doubt take on a new life as our attitude of conservation becomes more widespread and intensive. Even the owner who has been completely free to abuse the land is beginning to find that society will protect its interest in the maintenance of the soil, and that restrictions will be even more rigid and effective than was anticipated by those placed upon holders of lesser estates in land.

There are possibly numerous other restrictions the mentioning of which would be instructive, but space will not permit their presentation. We probably can more appropriately give some time to a consideration of some of the shortcomings of the tenure system. Again, it will be impossible to cover the entire field. We will have to confine our remarks to a few of the more obvious shortcomings.

Some Shortcomings of Our Tenure System

The suggestion has already been made that the law against waste

⁵ Margaret G. Reid, Status of Farm Housing in Iowa. Res. Bul. 174, September 1934, Ames, Iowa.

has ineffectively protected the land against exploitation by the hard-pressed mortgagor, the unscrupulous tenant, and the money-grabbing holder of a life estate. The recent rapid depletion on thousands of heavily-mortgaged farms, is too fresh in the observation of most of us to need rehashing. Much has been said in recent years about the high degree of soil exhaustion found on many tenant-operated farms. We will not labor this point further. The necessity for legislative action to protect the premises of the landlord and the security of the mortgagee appears obvious even though its exact form may be subject to considerable debate, and rightly so.

The ravaging of our agricultural plant by the holders of life estates, however, is not so obvious, owing to its infrequency even though the magnitude of the depredations on these estates is extreme. A recent case called to my attention of a farm that I have known since childhood is apropos. The widow of the deceased inherited a life estate in a large, highly productive farm. She was to receive all of the income of the farm during her life, and since there were no children, the land was to pass to the nearest kin of the husband. A farmer brother of the widow was selected to manage the estate. Curiously enough this person was an "economic man" driven by all the impulses of unrestrained self-interest and individual initiative. Within a period of less than two decades he transformed most of the productive capacity of the farm into cash in bank and bonds in the safe, a brother's share of which he anticipated inheriting upon the death of his widowed sister. The heirs of the husband received land so eroded as to represent almost a liability. They were not incommoded seriously for they had other sources of income, but society's loss is hardly measurable in dollars and cents—a quantitative evaluation of the loss in the selling price of the farm is certainly not a usable criterion. "A civilization lost" may be the answer, if proper adjustments in our system of property in agricultural land are not made.

A more frequent problem arising out of our system of tenure is the partitioning of the farm into uneconomic units. The economic and social impact of this practice is patent with those familiar with the small farms in areas such as the Southern Appalachians and the Ozarks and also with the Corn Belt farms subdivided through inheritance, the parcels of which become the rented acreages of part-owner units. Similar problems may arise when farms are subdivided at time of sale. The more ancient economies met such problems with restrictions on alienation and with their inheritance laws. Primogeniture kept the units intact while the principle of "retrait," well known to our colonial forefathers, restrained improper alienation. An old Connecticut law illustrates how this restraint operated. It provided that no inhabitant could sell his house and land until

he had first tendered the sale thereof to the town in which they were situated and acceptance of the sale was refused. Thus, the community could prevent a socially undesirable sale.

Another problem grows out of the freedom with which agricultural land can be bought and sold. This problem is one of inflated values which not only increases tenancy but leads to excessive mortgaging and numerous foreclosures. Wastage in our soil resources under these conditions has already been discussed. And yet, with the exception of the mortgage-moratorium laws, the situation has led to no significant adjustment in land tenure law. The moratorium laws are being discarded and the stage is being set for another headache. To be sure, the damaging effect of delinquency and foreclosure was partially dissipated but no fundamental adjustment resulted. Are we to go on our merry way and pay the same heavy toll one or twice each generation? Is the institution so sacred that it must not be adjusted to meet the needs of man? Are we its servants or its master?

Obviously, it is impossible to discuss all phases of our tenure system that should be examined. It may prove instructive, however, to merely mention some additional items that merit consideration. The slow, cumbersome, and costly foreclosure procedure in many jurisdictions and the widely varying periods of redemption are often prejudicial to the best interest of the individuals concerned, and they frequently permit serious exploitation during the period of uncertainty. The precarious position of the tenant when the mortgagee takes possession is quite a heavy burden in many instances, and the fact that the mortgagee may take possession may be a constant threat. Improvements in mortgaged premises during the period of the mortgage are often seriously and unnecessarily restricted, owing to the fact that these improvements become the property of the mortgagee in case of foreclosure even though they were not a part of the original security. The difficulty of establishing and maintaining an economic operating unit is serious in many areas of the West since the operator must rent from many owners, there being little or no relation between the size of ownership and operating units. Current methods of splitting the fee between surface and subsurface ownerships, difficulty in securing clear titles, and poor recording procedures are often the bases for serious inconveniences and inequities. The law permitting almost immediate repossession in case of delinquency under the increasingly common contracts of sale will without doubt prove to be an exploitative device in the hands of unscrupulous parties. Covenants in deeds covering a wide range of restrictions become burdensome before the courts will rule that they are no longer justifiable.

Much of the above discussion has been concerned more specifically with land ownership than with farm tenancy. Many of the shortcomings of farm tenancy, however, have been the subject of endless discussion. They may be enumerated briefly as follows: (a) the extreme difficulty, if not the impossibility, of a definite interpretation of many provisions of the tenancy law; (b) the adverse effect upon rural renting of the urban influence on landlord-tenant law; (c) the slow, cumbersome, costly judicial procedure; (d) the difficulty of distinguishing a tenant from a sharecropper; (e) the lack of stability and security afforded the tenant under the law; (f) the unsatisfactory position of both landlord and tenant in matters of repairs, fixtures, and improvements; and (g) the severity of the landlord's lien in many jurisdictions. We will not repeat the stock discussion and illustrations here. Suffice it to merely mention them.

Some Problems in Tenure Adjustment

One of the major impediments hampering timely adjustments in the law relating to tenure is the training of legal and economic technicians. The legal student is taught to interpret the law in light of precedence. His training and practice is to determine what is, by what has been, and not what should be. His thinking partakes of the religion of the Orient and not that of the Occident; he looks backward and not forward. Many students of economics are not sufficiently informed about law even to know when they need the services of a lawyer. Recently, however, some of the schools are reorienting their instruction. The law is being looked upon as a social tool designed to facilitate progress rather than to thwart economic and social adjustments. The future holds bright possibilities for growth based upon adjustments outlined after mature study by qualified scientists, rather than upon snap judgments of professional politicians. Brandeis, Frankfurter, Pound, and such leaders point to "a new order of the ages" in the development and interpretation of our legal theories; but the change will not be easy.

There was a time in the evolution of our science when rights in land were looked upon as God-given. They resulted from natural law, and were, therefore, not to be tinkered with. In fact, such a philosophy is adhered to by some of our brethren to this day; they say, private property in agricultural land is sacred; a discussion of it is taboo. They have not progressed in their thinking to the place of Smith, Mill, and others, not to mention the progress during the last century and a half. There are some who even disclaim any relation between land tenure law and the day-to-day activities of farmers. These followers of "natural law" contradict their own position when they say that their "natural law" should not be

changed by man, for if it were "natural," man would be powerless to adjust it.

The degree to which land tenure law has been and should be oriented to minister to the general welfare depends to a large extent upon ethical value judgments arrived at through detached abstract reasoning. In many land tenure considerations, contrary to most of the situations within the field of the economist, it is impossible to state in reasonably exact quantitative terms the increased efficiency or economic wellbeing flowing from an adjustment adding to the security with which the farmer holds his land. Likewise, the economic cost to the individual entrepreneur of the lack of an incentive and opportunity to maintain and improve the farm is not easily reducible to dollars and cents. Even if economic effects could be appraised with precision a multitude of non-economic considerations of importance to both the individual and to society can be evaluated only approximately and certainly not in terms of dollars. Neither the economic cost nor the social gain resulting from a specific adjustment in our inheritance laws can be accurately calculated. What are the relative social, psychological, and political, as well as economic, merits of a wide diffusion of agricultural land in the hands of owner-operators in family-sized units, as compared with a concentration of landlordship in the hands of a few with tenant-operation, or an efficient "factory system" in agriculture with the factors of production—land, labor, capital, and entrepreneurship—being split among four groups?

Yes, the determination of the direction of many future adjustments, made necessary by weaknesses in our present land tenure system, will depend largely upon ethical evaluations. But future adjustments can best be made by reducing to a minimum the magnitude of value judgments and increasing to a maximum the information, both quantitative and qualitative, upon which value judgments are based. Much will probably be said about maximizing this type of information in the papers on research later on today.

Our experience and the history of England's legislative attack on the tenancy problem give striking proof of two things. First, legislative reforms, to be effective, must be compulsory although for purposes of social acclimation, it is sometimes necessary to make them permissive at first. Secondly, desirable results depend on a comprehensive attack since the various phases of the problem are so closely related. Without foresight we may solve one difficulty while accentuating another a hundredfold. The problems are complex and the solutions are complex, but if we keep our eyes open and evaluate our every move, desirable adjustments can be attained.

EFFECT OF TENURE SYSTEMS ON AGRICULTURAL EFFICIENCY

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I. *Concept of Efficiency*

Efficiency refers to the degree of success with which a definite device is used to achieve a definite purpose. It is a measure of the appropriateness of certain specific means to a given end. Where these devices and their purposes are simple and directly measurable, their efficiency can readily be expressed in terms of input-output ratios. For instance in agriculture, the relative physical efficiencies of two dairy cows can be measured by the amount of dairy products obtained per unit of feed. The process of putting feed through livestock is the means to the end of obtaining livestock products, and the livestock is the device whose physical or technical efficiency can be measured in terms of input-output ratios.

The efficiency which is measured by physical input-output ratios I shall call "technical" efficiency. Although technical efficiency does not tell us anything directly about the economic aspects of a process or enterprise, it is of central importance as a physical determinant of income and prices, and constitutes a basic concept in farm management, and the economy of the firm in general.¹

When the devices and their purposes become complex and heterogeneous in character, and their constituent elements are measured in economic value terms, the concept of efficiency tends to become involved. Its analytical usefulness requires a clearly defined frame of reference, a "means-end schema," which determines beyond doubt the efficiency of what means is to be measured relative to which end pursued.

The efficiency of combinations of factors of production employed in a firm and valued in monetary terms, relative to the monetary income produced by them shall be called "*entrepreneurial*" efficiency of *farming*, or "farming efficiency." It refers to the combination of productive agents devised for the purpose of maximizing income over cost in an individual firm. Here, the problem of measurement, of accurate valuation of economic cost and returns, is much more intricate than in the case of technical efficiency. Equally important is it to be aware of the complexity of the empirical end of any going concern. Maximizing money-income is only one of the

¹ J. A. Hopkins, The uses of efficiency factors in analysis of farm records, Iowa Agr. Exp. Sta. Res. Bul. 160, 1933.

purposes to which a farm is put. High efficiency relative to that end may well be associated with low efficiency regarding such ends as providing a secure livelihood throughout booms and depressions, satisfying the want for agreeable social and cultural surroundings. The concept of efficiency has only meaning if it refers to a specific means-end relationship.

Entrepreneurial efficiency applies only to the individual firm analyzed in isolation. Number of firms, aggregates of output and factors do not enter the analytical schema. Prices are taken as given or treated as parametric constants.

With regard to agriculture as a whole, efficiency of agricultural production does not refer to any individual farm, but to the totality of agricultural enterprises, to agriculture as a sector of the national economy. The frame of reference, the means-end schema, within which the term "efficiency" of agricultural production has meaning, is distinctly different from that of an individual farm. The "socio-economic" end of agricultural production, for this discussion, shall be defined as the maximization of the "social net product" (in Pigou's sense) contributed by agriculture to the national economy.²

The efficiency of the combination of productive factors employed in agriculture as a whole (or in a given area) relative to its social product shall be called "*socio-economic*" efficiency of agriculture, or "agricultural efficiency."

There is another type of efficiency that has an important bearing on the tenure problem: the "distributive efficiency" of the tenure system with respect to a socially desirable pattern of income distribution among the agricultural population. Are the rents paid by tenants, the wages paid to farm laborers, "fair"? Society values not only the amount of the social product, but also its mode of distribution among the members of society.³ Tenure conditions strongly affect distributive as well as productive efficiency in the rural economy, as will be shown later.

II. Typical Tenure Systems and Entrepreneurial Efficiency of the Farm

In the following I shall make ample use of the methodological device of "ideal types." I trust I need not labor upon the merits

² Strictly speaking, the population surplus furnished by agriculture to the economy must be considered as a part of its social product, and all public services and subsidies so far as farm families benefit from them and as they are furnished by non-agricultural sectors of the economy must be considered as a part of its social cost.

³ It is characteristic of liberal democratic society that it tends to prefer, within limits, a smaller social product fairly equally distributed to a larger one very unequally distributed—especially if this unequal distribution results in a large group of people living below whatever standard of living is generally accepted as "decent" in a given area and period.

and limitations of this analytical procedure; its merits are that we cannot get along without it, its limitations that it can never apply to the totality of a concrete empirical situation. There are no ideal types in empirical reality, just as there is no absolute vacuum in nature. Yet, every word, every concept is fundamentally an abstraction. Without the "ideal type," and without words, without the process of abstraction, the chaotic maze of random phenomena would remain utterly unintelligible.

In the following, I shall discuss five types of tenure in their effect upon the entrepreneurial efficiency of farming. These five types may not be statistically representative of actual tenure systems prevalent in any given area. Reality is always a mixture of "ideal types," of analytical models. These models, however, serve a most useful purpose in disentangling the complexity of component elements and forces constituting the empirical phenomena. The tenure models described below will apply only partially to any concrete tenure arrangement; but it is hoped they will prove helpful in understanding the problems involved in actual tenure conditions.

Each of the tenure types will be discussed regarding two aspects: (1) its tenure characteristics, relevant to farming efficiency, and (2) the effect of these tenure characteristics upon efficiency conditions on the farm.

Assuming that prices are determined in competitive markets and are given to the entrepreneurs, and that the farmers behave rationally with respect to pursuing the economic end of maximizing their net incomes from farming, we can establish two basic conditions required for attaining maximum efficiency of the farm enterprise:

- (1) The intensity of labor and capital application per unit of land area is such that marginal cost equal marginal returns;⁴
- (2) The proportional combination of factors is such that all factors yield equi-marginal returns.

These maximum efficiency conditions apply to the farm as a whole. The question is now: how do the tenure characteristics of each of the five types affect the farming efficiency with respect to these maximum conditions?

In discussing entrepreneurial efficiency of farming, the individual farm is our frame of reference. All aggregates, like total number of farms, of acreages, of output units, of farm families, are disregarded. An increase in entrepreneurial farming efficiency may or may not be associated with an increase in the social net product derived

⁴ This statement implies that the acreage in each farm enterprise is considered constant. This restrictive assumption is not essential for the following arguments; it merely simplifies the exposition.

from agriculture. I should like to state emphatically that no conclusion reached in this firm analysis can be directly applied to the socio-economic aspects of agriculture.

1. *Farm owner-operatorship*

To evaluate the influence of tenure arrangements upon farming efficiency, let us first establish a norm, a standard of reference with which the conditions typical of various forms of tenure might be compared.

The "ideal type" of farm owner-operatorship (in brief "farm ownership") shall be characterized by the unencumbered ownership⁵ of land and permanent improvements by the entrepreneur. His occupancy is secure. His economic purpose in farming is to maximize his income over his lifetime, leaving the productivity of his land resources intact in anticipation of one of his children continuing to carry on the farm enterprise. His production plans include phases extending over long periods, and some might even go beyond his life expectation.⁶ The major part of the labor supply is furnished by himself and his family.

How do these tenure characteristics affect the efficiency conditions on the farm? Since the farm owner has full equity in the land and complete managerial control, he is the sole recipient of the firm's profit, of the excess of returns over cost. This leads to the first important characteristic of efficiency conditions under farm ownership, which facilitates meeting the first condition of maximum efficiency of the enterprise, i.e., optimum intensity:

- (1) the optimum intensity of production organization for the firm coincides with the optimum for the entrepreneur.

Next, the farm owner's occupancy is secure and he anticipates staying on the farm for many years. In proportioning his productive factors he has no interest in keeping fixed costs down below the point where the marginal returns of durable factors (permanent improvements) equal those of non-durable factors (working assets and labor). The component production plans of the farm organization span periods of widely varying length since uncertainty of occupancy does not enter the entrepreneur's calculations. This leads to the second major characteristic of efficiency conditions corresponding to the second maximum condition:

⁵ Moderate encumbrance does not vitiate the analysis. For heavily encumbered ownership, a special "model" might be established for analytical purposes.

⁶ In the following, "production plans" shall refer to the individual components of the production organization, and the "period of production plan" refers to the length of time expected to be needed to liquidate or amortize the initial capital and labor investments.

- (2) certainty of occupancy facilitates the optimum proportional combination of factors in the direction of equalizing the marginal returns of durable and non-durable factor inputs.

We conclude that under farm ownership the efficiency conditions of the farm enterprise correspond closely to those commonly described by the classical analysis of the firm under the assumptions of free competition.⁷ No specific tenure arrangements are in the farmer's way to achieve maximum farming efficiency.

To get our bearing to the empirical situation in this country: about 25 per cent of all farmers operate as unencumbered owners (as of 1930; see U. S. Census); a considerable number of them, however, particularly in the eastern and south-central mountain regions, are not price-responsive entrepreneurs strongly oriented to the market, and hence, the above analysis hardly applies to them. It applies more to the encumbered farm owners, especially when the degree of encumbrance is not so high as to introduce uncertainty of occupancy. Mortgaged farm owner-operators constitute about 18 per cent of all farmers. Some agricultural economists, in Europe notably F. Aereboe, in the United States, H. C. Taylor, have argued that a moderate degree of encumbrance affects farming efficiency beneficially, because the fixed obligations keep farmers constantly on the alert, interweave them more intimately with the market and stimulate competitive behavior. In "pure" economic theory the degree of encumbrance is, of course, a matter of indifference.

2. *Cash rent tenancy*

For purposes of contrast as well as of maintaining a fairly close correspondence with reality in this country, cash rent tenancy shall be characterized by a year-to-year lease contract stipulating an annually fixed cash rental to be paid by the entrepreneur to the landlord for the use of the farm land and permanent improvements. (Cash rent farms amounted to 18 per cent of all rented farms in 1930.) There are no provisions for compensation for unexhausted improvements, nor for protecting the tenant's occupancy from arbitrary termination of the lease.

The tenant's aim is to maximize his income over the expected time of occupancy. The element of uncertainty in his expectation of occupancy increases progressively with the distance from the

⁷ Perhaps with the exception of the pre-supposed stability of occupancy and ownership, irrespective of alternative employment and investment opportunities, and the end of maintaining land productivity in the interest of the family. These are non-economic conditions and ends which restrict competitive behavior to a somewhat narrower choice of alternatives.

current year. The landlord aims at maximizing his rental income over the expected time of ownership, which may be long or short, according to alternative investment opportunities, but generally longer than the tenant's expectation of occupancy. Assuming no or moderate encumbrance, no uncertainty of ownership exists for him. Maintenance of land productivity is not part of the given end of either tenant or landlord. Soil conservation may or may not be an appropriate means to their ends, depending upon expectations of prices and period of occupancy and ownership.

The landlord controls the rate of input of durable factors, the tenant that of non-durable factors. How does this separation of control over two classes of factors affect the efficiency conditions of the farm enterprise?

The first condition of maximum farming efficiency is that the intensity of the production organization is pushed to the point where marginal cost equal marginal returns for the enterprise as a whole (see p. 187). The landlord, however, under cash rent tenancy will push the input of durable factors only to the point where their marginal cost equal the marginal increment in rent the tenant is willing to pay. Since the landlord has no control over the rate of input of non-durable factors, he tends to assume the present level of non-durable inputs as given which results in rapidly diminishing marginal returns of durable factors (according to the law of proportionality of factors). An increase in the intensity of durable factor inputs involves an increase in the intensity of non-durable factors if optimum combination and maximum efficiency is to be achieved.⁸

The synchronization of these two classes of inputs is impeded by the division of control between the two parties whose estimates of marginal returns and of the increment in rent justly claimed for additional improvements may differ widely. Consequently, the amount of input of durable factors will tend to stay below the optimum intensity, and hence to keep the production organization below maximum efficiency.⁹

⁸ Except in the disequilibrium case of a greatly under-improved farm where the marginal returns from durable inputs may be so high as to amply cover their marginal cost in the form of rent increments and at the same time increase the marginal returns from the tenant's factors (due to the low marginal rate of substitution of non-durable for durable factors at such a combination).

⁹ There are, of course, cases of "over-improved" farms operated by tenants, but they are exceptions rather than the rule. Usually an above optimum intensity of durable factors on rented farms is the result of a previous owner-operator's fancy, or of malinvestments in drainage and irrigation programs where the expectations upon which they were built failed to be realized. The divergence between the landlord's and the tenant's estimates of the marginal returns of improvements tends to widen as more landlords lose, or never had, contact with farming conditions.

This leads us to the first characteristic of efficiency conditions under cash rent tenancy:

- (1) the optimum intensity of production organization for the firm does not necessarily coincide with the optimum intensity of durable inputs from the landlord's viewpoint, nor with the optimum intensity of non-durable inputs from the tenant's viewpoint. This results in a tendency toward less or more than optimum intensity and less than maximum efficiency of the farm enterprise.

The second condition of maximum farming efficiency is that the proportional combination of factors is such as to yield equimarginal returns to all factors. In this respect there is also a distinct contrast to the farm owner. The tenant's future length of occupancy is uncertain. In proportioning his productive factors he applies relatively more of those that fit into production plans of short periods (e.g., annual crops, hogs, cattle feeding, poultry) and relatively less of those pertaining to long period plans (e.g., perennial crops, dairying, cattle breeding) even though the latter would yield larger marginal returns. These longer period plans are burdened with a high risk involved in the uncertainty of occupancy. The result is that the component production plans of the farm organization are weighted heavily in the direction of short periods keeping the farm enterprise below the optimum combination of factors and below the maximum efficiency. Since there exists an obvious direct correlation between the length of the period of the production plan and the durability of the relevant productive factors,¹⁰ the second characteristic of the efficiency conditions under cash rent tenancy can be stated as follows:

- (2) uncertainty of occupancy results in distortion of the proportional combination of factors in the direction of minimizing long production plans and durable factor inputs, and hence in inequimarginal returns.

It is not only uncertainty of occupancy that brings forth these results. The legal tradition, implied in the above description of cash rent tenancy, that any improvements attached to the land become the landlord's property at the termination of the lease, is also responsible for these efficiency conditions. Even if uncertainty of occupancy is reduced by long lease terms or mutual understanding between landlord and tenant, the latter is reluctant to invest in permanent or semi-permanent improvements because they enable the landlord to increase the rent, and at the termination of the lease

¹⁰ Needless to say that in reality there is a continuous gradation of factors according to "durability," and that the dichotomy of "durable" and "non-durable" factors is used merely for heuristic purposes. See also footnote 6.

the tenant's equity in these improvements is unprotected and subject to seizure by the landlord. He either must meet the higher bid of an outside tenant, or quit.

On the other hand, the effect of uncertainty of occupancy can be greatly mitigated by granting protection to the tenant's equity in durable factor inputs through compensation for unexhausted improvements.¹¹ Such compensation provision increases the tenant's managerial control and enables him to push his farm organization more closely to the point of optimum intensity and optimum combination of factors even under one-year leases. There are, however, long period production plans involving relatively durable factors not attached to the land, such as breeding stock, expensive machinery and equipment, etc., whose liquidation or cost of moving in case the lease is terminated involves substantial losses. These types of productive plans and corresponding factors will not be developed to the point of optimum intensity even under effective provisions for improvement compensation. A reduction in the uncertainty of occupancy is required to permit the employment of these plans and factors up to the point of maximum farming efficiency.

We conclude that under cash rent tenancy the tenant's interest is to push his application of non-durable factors at least to the point of equi-marginal returns with whatever durable factors are furnished by the landlord, and possibly beyond that as far as the marginal costs of his non-durable factors stay below their marginal returns. This shows again that the maximum efficiency of the farm enterprise need not, and frequently does not, coincide with the maximum efficiency of the tenant's farming operations. The lack of coincidence ultimately traces back to the fact that the control over the productive factors as well as the net return of the farm enterprise are divided between two persons who may easily differ in their evaluation of costs and returns attributable to their respective factor contributions, and in the ends they pursue.

3. *Crop share tenancy*

This form of tenure shall be characterized by a year-to-year lease contract stipulating a fixed proportion of the crop to be paid in kind to the landlord for the use of the farm land and permanent improvements. Nearly all the farm land is in cash crops, except a garden lot and some pasture land available free of charge for the tenant's use. The tenant furnishes all labor, machinery and other operating expenses. Landlord and tenant decide jointly upon the acreage to be put in each of the crops, since the landlord's rent is

¹¹ Marshall Harris, Compensation as a means of improving the farm tenancy system. U.S.D.A., Land Use Planning Publication No. 14, 1937.

partly determined by the prices of the crops of which he receives rental shares. Except for the decision on crop acreages, the landlord's control over management is restricted to the permanent improvements as in the case of cash rent tenancy.¹²

Here, the same considerations apply as in the case of cash rented farms, regarding the difficulty of (a) bringing the intensity of both durable and non-durable factor inputs to the optimum and (b) achieving the optimum combination of factors and production plans. In addition, however, another element enters into the situation: the rent is not a fixed cash sum, but a share of the crop, and hence is a function of crop yield and price. Eliminating the price factor by assuming constancy of price, let us analyze the effect of the crop share rent on imputs affecting crop yields.

Obviously, most of the more permanent improvements, such as buildings and fences, have no or little direct effect upon yields; the landlord, under this form of tenancy, sees no strong inducement for furnishing such improvements beyond a minimum required to attract competent tenants. Particularly improvements required for livestock enterprises are not readily furnished by the landlord as he reaps no direct returns from them. Crop yields are determined by non-durable factor imputs, such as labor, machinery, seeds and fertilizer, which are under the control of the tenant. How far is it in his interest to push the intensity of his crop operations?

If we assume the rental share to be half the crop, the tenant maximizes his income by adding imputs up to the point where their marginal cost equal one-half their marginal returns.¹³ This can easily be seen in figure 1 where unit cost of imputs is assumed to be constant. Obviously, the tenant makes his landlord a present with any unit of imput beyond OA. When he reaches the point where the marginal cost equals the marginal return from the total crop, i.e. where maximum farming efficiency obtains, this present equals the area DEF.

Whenever a tenant, due to keen competition for farms, can reduce the uncertainty of his occupancy by "doing an extra good job of farming" which implies a higher degree of intensity than is indicated by OA, he is paying a hidden privilege rent to the landlord for being permitted to stay on the farm.

¹² This picture of crop share tenancy does not match the actual crop share arrangements commonly found in the Corn Belt or the Cotton Belt. To the extent to which cash rent is paid for hay and pasture land, the farming efficiency conditions approach those described under cash rent tenancy. The specific type of crop share tenancy used as basis of discussion in this section is most closely approached by the cash grain farms of the Great Plains and the Pacific Northwest and by the "metayage" system in France and northern Italy.

¹³ See Marshall, Principles, Book VI, Ch. 10, §4.

In comparison with cash rent conditions, it is clear that the degree of intensity of farming operations, and hence the efficiency of the farm enterprise as a whole, tends to be materially lower under crop share tenancy. These considerations furnish the objective basis for the common expression that share renting hampers the full development of the tenant's initiative and ingenuity, and

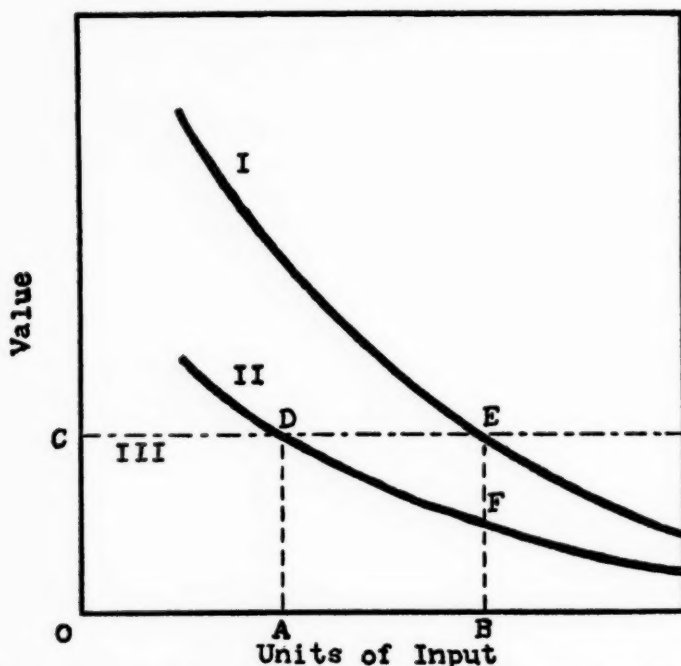


FIG. 1. MARGINAL RETURNS FROM TOTAL CROP AND TENANT'S CROP SHARE

Legend: I. Marginal returns from total crop.

II. Marginal returns from tenant's crop share ($\frac{1}{3}$).

III. Unit cost of input.

for the general discredit into which share renting has fallen in the highly commercialized agricultural regions of Europe, notably England, Germany and the Scandinavian countries.

In the United States, crop share renting is still a "respectable" form of tenancy. Its depressing effect upon farming efficiency, although not eliminated, is mitigated by several facts and modifications of rental terms. For instance, (1) in most of the cash grain farming regions where crop share renting is most common, the level of intensity of crop production is low. Very little fertilizer is used, labor and machinery inputs per acre are relatively small and

highly standardized, and the farms highly specialized in the production of cash crops. (2) Where crop rotations have become more diversified and livestock enterprises have expanded, for example, in the Corn Belt, it has become customary to pay a cash rent for land in hay and pasture in addition to the crop share rent. Thus, land is released from cash crops for forage crops and the tenant can intensify his livestock enterprises.¹⁴ (3) Where commercial fertilizers or expensive seeds are required, the landlord often shares in these operating costs. From the above chart it can be seen that if the landlord would share equally in all the input costs going into crop production the intensity would be carried to OB, that is, to the same degree which corresponds to the maximum efficiency. Since labor and machinery are always furnished by the tenant alone, total operating expenses are never fully shared between landlord and tenant; a sharing of parts of these costs mitigates, but does not eliminate the effect of share rent on intensity of operation, and hence on farming efficiency.

4. *Stock share tenancy*

"Renting land on stock shares" is really a misnomer. Under stock share leases the tenant pays not only rent for land and permanent improvements, but also interest on half of the livestock and sometimes part of the machines, and shares in whatever management returns arise. We shall characterize this form of tenure as follows: the landlord furnishes the land and buildings and half of all livestock, machinery, and other costs of operating expenses; the tenant furnishes his and his family's labor and the other half of all livestock, machinery and other cash operating expenses. The total returns of the farm enterprise as a whole are equally divided between landlord and tenant.¹⁵ Such a tenure arrangement is a business partnership rather than a tenancy. The partners own all working assets jointly, share equally in all cash operating expenses, and decide (quite arbitrarily!) that the annual value of the contribution in land and buildings shall be considered equal to the annual value of the tenant's contribution of labor; accordingly, the total returns from the farm are equally divided between the

¹⁴ The expansion of livestock enterprises not requiring roughage is, of course, not directly hampered by the payment of crop share rent; indirectly, however, lack of permanent improvements like adequate buildings and fences may handicap the expansion of hog production or poultry, as well as cattle and sheep.

¹⁵ The details of provisions found in stockshare leases are quite variable and less standardized than those of crop share leases. In the middle west, the tenant often owns all the workstock and machinery, but the feed for the workstock and the operating expenses for machinery are furnished jointly. The division of the receipts usually remains half and half.

two partners. No rent is paid as such. It constitutes an unidentified part of the landlord's share of the farm receipts.

The tenant's occupancy is usually quite secure, and both partners' interest coincides in general in maximizing the net returns of the farm enterprise as a whole. Since close cooperation in management is required to render the tenure arrangement at all equitable, the effect of the division of control over inputs, and of returns, upon the efficiency conditions is minimized as compared to cash rent and crop share tenancy, at least in theory. The only economic defect of this arrangement, relative to farm owner-operation, is the arbitrariness with which the annual cost of land and improvements is equated with the cost of the tenant's labor. The assumption of this equality is made in practice without regard to the productivity and area of land or the size and composition of the tenant's labor contribution.¹⁶

Disregarding this defect, the efficiency conditions under stock share leases approach those under farm ownership the closer, the more harmonious the personal relations, the more evenly balanced the managerial contributions of landlord and tenant are. If this harmony between the two partners is perfect, the "entrepreneur" under stock share tenancy can theoretically be considered as one person who behaves according to the pattern outlined for the owner-operator. If this harmony does not exist, or the contributions are unevenly balanced, as they often are in practice, the analytical procedure outlined for crop share and cash rent tenancy applies with respect to the economic aspects of the efficiency conditions.

5. *Large-scale farming*

"Large-scale farming" is characterized by a complete segregation of manual labor and management in the farm enterprise. The occupiers of the land, the tillers of the soil, are hired laborers and have no, or very little, control over intensity of input application and combination of factors. The entrepreneur is the landowner or his hired delegate, the manager, who makes managerial decisions and supervises the foremen and laborers, or share croppers. The economic structure of this form of tenure approaches that of an industrial firm most closely of any agricultural type of tenure.

The strictly economic aspects of the efficiency conditions under large-scale farming do not obstruct the entrepreneur in pushing his operations to the point of optimum intensity and optimum combination of factors, at least not in theory. The entrepreneur has full and undivided control over the productive agents. Even

¹⁶ Incidentally, similarly crude and often palpably false assumptions underlie the determination of crop share rentals.

though part of his labor force may be paid wages in terms of crop shares, as for instance under share cropping in the cotton belt, these crop share wages represent economically speaking a device to reduce cost of supervision, somewhat analogous to piece wages or royalties, rather than any reward for other cost contributions or management. The laborer can increase output only within the narrow limits set by the technical efficiency of his own individual labor. He has no command over any other input factors. Under share cropping then, the landowner pays the cropper's wage with a share of the crop; it is not the cropper who pays the landowner's rent with a share of the crop.¹⁷

Although theoretically the entrepreneurial efficiency conditions under the plantation system correspond rather closely to those characteristics of "representative firm" (especially regarding unity of entrepreneurship and certainty of tenure), there are many socio-economic and tenure factors encroaching upon the actual farming efficiency prevalent under share cropping in the Cotton Belt, some of which shall be touched upon later.

6. Some institutional adjustments

Only a few words about some specific institutional adjustments in tenure arrangements designed to mitigate, if not eliminate, the depressive effect of present tenancy characteristics upon farming efficiency.

(1) Compensation for unexhausted improvements made by the tenant reduces the effect of dual control over durable and non-durable factor inputs upon intensity and optimum factor combination under cash rent and share leases. The compensation principle establishes greater unity of entrepreneurship. Compensation for damage done to the landlord's assets by the tenant is a logical corollary.

(2) Security of tenure reduces the effect of uncertainty of occupancy upon the balance of long and short period production plans and thereby facilitates optimum factor combinations. It is important that the tenant's right of occupancy should not be fixed beyond a point where he becomes unduly protected from competition. Long-term leases are not essential to security of tenure; compensation for disturbance and certain other rights of occupancy can establish a reasonable degree of tenure security under one-year leases, as the experience in England demonstrates.

¹⁷ In other respects the status of the share cropper may be closer to the tenant than the laborer. There are many variations in actual share cropper arrangements. See C. D. Brannen, *Relation of land tenure to plantation organization*. U.S.D.A. Dept. Bull. 1269, Oct. 1924.

(3) Replacement of share by cash rent leases eliminates the effect of the "tenant share curve" of marginal returns upon intensity of farming operations. This shift from share to cash renting implies that tenants are willing and capable to assume greater entrepreneurial responsibilities, and that landlords are willing to accept somewhat lower but considerably more stable rental incomes. It is reasonable to assume that the majority of present share tenants in the North have the necessary managerial ability to carry such increased responsibilities; but it is doubtful whether their present sources of credit are adequate for this purpose. Greater security of tenure might also be a prerequisite.

III. *Tenure Systems and Socio-Economic Efficiency of Agriculture*

After having examined the economic aspects of entrepreneurial efficiency of farms under various types of tenure, let us turn to the totality of farms, the agricultural sector of the national economy. How do tenure conditions affect the socio-economic efficiency of agriculture, or "agricultural efficiency"?

If we take the individual farm out of its analytical isolation and shift our focus of interest to the rural economy, of which the farms are constituent parts, the content of the concept of efficiency changes. "Agriculture" becomes a much more complex device serving a different complex of purpose.

Our methodological equipment for the analysis of social aggregates and multiplicities of ends is much more primitive and inadequate than for the analysis of the firm. The lack of concern with which economists often project conclusions and propositions derived from the "representative firm" to the economy as a whole is scientifically inexcusable, at least from the viewpoint of empirical science. More specifically: while a highly simplified analytical model of the economy of the firm, designating the maximization of entrepreneurial profit as the end to which the firm is put, enables us to understand a great deal of the concrete reality of the firm's internal production organization, the transposition of this same model to the national economy might easily lead us far astray in our attempt to understand its reality, because the set of assumptions applying fairly well to the empirical situation of the firm does not nearly as well apply to that of the national economy.

Furthermore, in the action system of the "representative firm," the laborer is an inarticulate object, a commodity priced in the market like any other productive factor. In the action system of the national economy, the laborer becomes an articulate member

of the collectivity of actors.¹⁸ He acts, he makes decisions, and he influences ideologies and institutions in the framework of which the economy functions. The concept of "maximum social net product" is one which cannot be defined without an explicit value judgment involving inter-personal utility comparisons, or what amounts to ultimately the same thing: a normative pattern of income distribution.¹⁹ The concept of maximum entrepreneurial profit does not necessarily involve any such value judgments, at least not if the price mechanism and certain institutional conditions are taken for granted (as they usually are).

I propose, for the purpose of this discussion, to appraise the effect of tenure upon the efficiency of agriculture with reference to two aspects: (1) the social net product derived from agriculture, and (2) the pattern of income distribution.

1. *The social net product of agriculture*

The social net product of agriculture is affected by tenure arrangements in three ways:

First, to the extent to which certain tenure characteristics, mainly divided entrepreneurship, share rents, and uncertainty of occupancy, result in below optimum intensity of farming (see above), the *aggregate output* is reduced; the social net product is correspondingly depressed to a level below the maximum as a specific result of those tenure conditions.

Second, to the extent to which the composition of the agricultural product is distorted due to a production organization biased in favor of short-period production plans, resulting in too much cotton, wheat, corn and hogs, and in too little milk, butter, beef and fruits (p. 191), the utility of the social net product of agriculture is reduced as a result of tenure conditions.

That is to say that if certain tenure characteristics would not prevent the allocation of productive factors in agriculture according to equi-marginal returns in the various lines of production a given amount of money could buy a collection of agricultural goods yielding a greater satisfaction to consumers. Factors now used to produce "surplus" commodities could reap higher marginal returns in the production of other goods.

These two considerations suggest that, if it were not for these

¹⁸ Dr. Leontief once made the remark that if horses were not such placid and inarticulate beings, the twenties would have been a period of unprecedented social unrest in the United States. Twelve million horses were eliminated from the economy within a decade.

¹⁹ Pigou, *Economics of welfare*, Part I. Ch. 8; Harrod, *Scope and method of economics*, *Econ. Jour.* Sept. 1938; Kaldor, *Welfare propositions of economics*, *ibid.*, Sept. 1939; and Oscar Lange, *On the economic theory of socialism*, pp. 74 ff.

specific tenure effects upon the social product, the consuming public could move to higher indifference curves by way of the "income effect" as well as the "substitution effect," according to Hicks' terminology.²⁰

Third, there are *social costs* arising from tenure conditions which do not appear in the analysis of the individual farm, but affect the social net product significantly. I shall briefly indicate three such sources of social cost:

- (1) *Excessive mobility of tenants*; to the extent to which the cost of moving from one farm to another is not balanced by a corresponding increase in the marginal returns of the labor and capital of the tenant on the new farm, that cost constitutes a social waste. A certain amount of mobility of farmers is required to allow current adjustments in the allocation of labor and capital over the land resources according to the principle of equalization of marginal returns. Any mobility in excess of this requirement, however, depresses agricultural efficiency, and hence the social net product. There can be no doubt that tenant mobility in this country is far in excess of that efficiency requirement. The social cost it involves consists of many diverse elements, such as the actual cash expenses of moving the family, equipment, livestock, and inventories; the time and money spent to find a new farm; the loss incurred by selling unfinished livestock, equipment, inventories at abnormally low prices; the loss of "good will" in the old community and the cost involved in gaining it in the new; and the losses incurred during the adjustment period on the new farm due to lack of acquaintance with the details of the new physical and economic environment. In addition many social disadvantages of frequent moving with respect to education, social contacts, community organizations and institutions must be considered.
- (2) *Soil deterioration on rented farms*; uncertainty of the tenant's occupancy, his lack of control over certain durable factors needed for soil conservation, the emphasis on erosive cash crops imparted by the crop share rent—these are only some of the factors responsible for the greater rate of soil deterioration quite generally found under tenancy.²¹ This excess

²⁰ See Hicks, *Value and capital*, p. 31. "Income-effect" is meant to refer to moving along the income-consumption curve (p. 28), "Substitution-effect" to moving along the price-consumption curve (p. 30.)

²¹ See article in U.S.D.A. 1939 yearbook, *Soils and Men*, entitled "Defects in Farming Systems and Farm Tenancy; and Schickele and Himmel, *Socio-Economic Phases of Soil Conservation*, Iowa Agr. Exp. Sta. Res. Bul. 241, October 1938.

of soil deterioration over the rate found on owner-farms constitutes a social cost attributable to tenancy characteristics. It also consists of several elements, such as loss of soil fertility, silting of streams and reservoirs, flood damage, etc.

- (3) *Displacement of farm families*, associated with certain changes in tenure conditions, and coincident with lack of alternative employment opportunities; the cost incurred in supporting such families from the time of their displacement to the time they have found a new opportunity for employing their labor and capital resources constitutes a social loss, regardless whether these costs are covered by public or private funds.

This last source of social cost reducing the social net product derived from agriculture deserves further comment. If, for instance, through some changes in tenure arrangements the entrepreneurial efficiency of the farm could be increased (e.g. by consolidating farms into large-scale enterprises operated by professional managers and employing fewer laborers per acre than there were farmers before), and the displaced farm families would remain unemployed for a considerable length of time (or cause other workers or farmers to become unemployed), the increase in entrepreneurial returns must be reduced by the social cost involved in the unemployment of the displaced families' resources, and if the latter are larger than the former, the increase in entrepreneurial farming efficiency results in a decrease in the socio-economic efficiency of agriculture, in a reduction of the social net product.²²

This aspect of social cost which is related to the aggregate volume of employment traces back to a fundamental ideological position held by people in a modern liberal-democratic society: everybody should earn his living by work, by contributing to the social product, and everybody should have an equal opportunity to apply his skills and resources in work. It is this ethical conception of human labor which sets it apart from other factors of production. Idle workers always represent a social cost, always depress the social net product, while idle capital and land need not necessarily do so. In a liberal-democratic society, the socio-economic efficiency of agriculture, or of any other sector of the economy, with reference to the maximization of the social product must be

²² The brevity of this statement renders it vulnerable. It can be readily seen, however, that sweeping changes in technological and tenurial conditions in the direction of increasing entrepreneurial efficiency may, at least for a considerable time, create such dislocations in some non-agricultural sectors of the economy that the sum of entrepreneurial gains is more than offset by the social costs plus the individual losses engendered by these dislocations.

appraised subject to the condition of full employment of human resources throughout the economy. The evaluation of any change in entrepreneurial efficiency with respect to the social net product must take into account the effect of such change upon the aggregate volume of employment.

2. *Income distribution in agriculture*

In the field of political economy, it is necessary to distinguish clearly between factorial and personal income distribution. In our capitalist society the main basis of the distributive pattern is *factorial*, that is a given social product is distributed according to the earnings of the various factors of production, usually grouped into capital, land and labor. Modern economic theory deals almost exclusively with the factorial distribution of income.

The *personal* distribution, that is the distribution of a given social product between income recipients, persons receiving income from whatever source, involves different analytical as well as empirical problems of the greatest social and economic concern. It is the pattern of personal income distribution which is valued by society as being good or bad, socially beneficial or detrimental. The "efficiency" of an economic system is appraised by society more directly according to its pattern of personal income distribution than its volume of social product. Almost any economic situation considered undesirable, maladjusted, deplorable by public opinion is characterized by the fact that its distribution aspects are not in accord with the normative pattern of personal income distribution society wants to see prevail.

The pattern of personal income distribution sanctioned by modern democratic society may be briefly characterized as follows:

A minimum standard of living generally accepted as "sufficient" especially with respect to health and educational needs available to every member of society, and inter-personal variations in incomes above this minimum level according to differences in personal effort, sacrifice and talent contributed to the social product. This pattern which for want of a better name we shall call "equalitarian" does not recognize income stratifications according to functional or hereditary classes of the population. For instance, a business man should not in principle receive a higher income than a laborer merely by virtue of the fact that he belongs to the class of employers, while the labor belongs to the class of employees.

In this country, the personal income distribution is largely based upon factor rewards. Hence, the personal distributive pattern is chiefly determined by: (1) the incidence of entrepreneurship and labor skill and (2) the incidence of capital and land ownership.

The more diffused entrepreneurship, labor skill and ownership are over the population, the more equalitarian is the distributive pattern likely to be. Both incidences are directly affected by tenure conditions in agriculture. For the time being we shall disregard the incidence of ownership and focus our analysis upon labor.

For simplicity's sake, let us divide the highly heterogeneous factor "labor" into two components: (1) entrepreneurship and (2) manual labor. Let us further assume that the second component is relatively homogeneous, that is, that technical skill is widely diffused among the laborers, and hence, if appropriately combined with other factors, the marginal product of manual labor does not vary over a wide range.

Now we can state that under these assumptions the tenure arrangements which facilitate the diffusion of entrepreneurship over the agricultural population, promote the equalitarian pattern of income distribution.

The tenure systems whose effects on the incidence of entrepreneurship are most strikingly in contrast, are farm ownership and large-scale farming. Under farm ownership, the bulk of manual labor and all of management are contributed by the same person, the owner-operator; in large-scale farming, manual labor and management are strictly separated.

Under the large-scale farming system, the range of variation in output due to variation in the quality of manual labor (e.g., technical skill) tends to be considerably smaller than that due to variations in managerial efficiency; such variations in labor productivity are at least partly reflected in the income distribution: laborers receiving a relatively uniform and low income, entrepreneurs a relatively more varying but higher income.

Under owner-operatorship, the labor income is not segregated between manual labor and entrepreneurship, and the reward for both labor elements goes to one person. The recipient of the labor factor reward gets the fluctuating entrepreneurial income in addition to the more uniform manual labor income, and no group distinctions on the basis of these two labor elements between low and high labor income receivers appear.

We conclude that farm ownership is conducive to approximating an equalitarian pattern of income distribution, while large-scale farming engenders a stratified distribution pattern characterized by distinctly differentiated levels of income received by different classes of labor.

There are, of course, all gradations between these two extremes. The more diffused the entrepreneur-element of labor is over all persons engaged in agriculture, the more equalitarian the pattern

of distribution will be; the more concentrated the entrepreneurship is in a group of persons functionally separated from the rest of the agricultural workers, the more strongly stratified will be the pattern of income distribution. To the extent to which the farm operators, be they owners or tenants, hire laborers, and thereby reduce the diffusion of the entrepreneurial function, the income distribution becomes less equalitarian and more stratified.²³

Turning to the various types of tenancy common in the United States, their effect upon the incidence of entrepreneurship depends largely upon (a) the degree of managerial responsibility of the tenant, (b) the character of his rental payments (i.e. cash or share), and (c) the security of his occupancy. Cash rent leases usually provide the greatest scope for developing entrepreneurship on the part of the tenant; only permanent improvements are withheld from his managerial control. Crop share leases offer a slightly more restricted scope of managerial freedom. Under stock share leases, freedom of management is usually still more restricted.

Where the tenant is permitted to make permanent improvements, and his equity in such improvements is protected by compensation provisions, and where his occupancy is secure, the diffusion of the entrepreneurial function is nearly as great as under owner-operatorship provided the farm remains of "family-size."

The incidence of entrepreneurship over the working population is a highly important problem, not only from the economic aspects of production and income distribution, but from social, psychological and plain human aspects as well. It treats of alertness, initiative, responsibility, yes, and of freedom. Concentration of entrepreneurship in the hands of a small group is conducive to anti-democratic tendencies in the body politic.

Economically, however, it must be recognized that the marginal productivity of manual laborers depends not only upon variations in technical skill and industriousness, but also upon the manner in which they are combined with other productive factors—which is a matter of entrepreneurship. Many laborers receive much higher wage incomes than they could ever earn as entrepreneurs. High-grade entrepreneurship is relatively scarce, and the maximization of the social product requires its full utilization just as much as full utilization of manual labor and other productive resources. The above argument, therefore, holds only subject to the condition that the diffusion of entrepreneurship does not result in a substantial

²³ For instance, this happened to a considerable degree under the tenancy system of England, where a rather large class of farm laborers work under the supervision of tenant entrepreneurs, and the landlord's income consists almost exclusively of land rent proper, with hardly a trace of entrepreneurial returns.

reduction in the social net product, in the socio-economic efficiency of production. Where this condition does not obtain, the concentration of entrepreneurship appears economically desirable, provided that such concentration of control does not lead to such an abuse of power and such a distortion of the distributive pattern that society does not appraise the gain in social product as sufficient to compensate for those abuses and distortions.

In modern times, democratic society has evolved two institutional devices designed to curb the socially undesirable effects of concentration of entrepreneurship upon the distributive pattern: (1) redistribution of income by means of taxation and subsidies and (2) collective exercise of certain entrepreneurial functions by large organized groups, such as labor unions, cooperatives, and governmental agencies administering laws. For instance, with regard to the second device, various trade union policies and social legislations influence or determine managerial decisions as to working conditions and hours, wage rates, social insurance of health, old age and unemployment, and partly offset the concentration of entrepreneurship in the hands of industrialists, in the interest of a more equalitarian pattern of income distribution.

3. *Some tentative conclusions*

In applying this line of reasoning to agricultural tenure, I should like to submit the following tentative conclusions:

(1) As long as the social product is distributed among persons largely on the basis of factor rewards (i.e. on the basis of prices paid to productive agents), and assuming manual labor to be relatively homogeneous, the personal distribution pattern is chiefly determined by:

- (a) the incidence of entrepreneurship, and
- (b) the incidence of capital and land ownership.²⁴

(2) Since in agriculture, land ownership is rather widely diffused, and the availability of capital is largely dependent upon entrepreneurship, let us hold the latter constant. Then, we can say, subject to the condition that diffusion of entrepreneurship does not substantially reduce the social net product:

The greater the diffusion of entrepreneurship over the agricultural population, the more equalitarian the distributive pattern; and, conversely, the greater the concentration of entrepreneurship in small groups, the more stratified the distributive pattern.

²⁴ The effect of technical skill of labor upon income distribution is disregarded in the present analysis, for the sake of simplicity of exposition. The diffusion of skill makes for smaller wage differentials between workers and for a higher average level of income, but does not eliminate the stratification resulting from concentration of the entrepreneurial functions.

(3) Where production efficiency requires large scale enterprises, the necessary concentration of entrepreneurial control in the hands of employers can be balanced in its effect upon personal income distribution by:

(a) vesting certain entrepreneurial functions in the hands of trade unions and governmental agencies, and

(b) redistributing income by means of taxation on subsidies. These constitute a device to retain, in effect, a substantial degree of diffusion of entrepreneurship and to safeguard the equalitarian character of income distribution.

(4) In American agriculture, the incidence of entrepreneurship is determined by two conditions:

(a) the division of managerial control between landlord and tenant, and

(b) the number of laborers employed per farm operator (be he owner or tenant).

The more managerial discretion is vested in the tenant, or the fewer laborers are employed per farm operator, the more equalitarian the distributive pattern, and conversely:

The more managerial discretion is withheld from the tenant, or the more laborers per farm operator, the more stratified the distributive pattern.

Since, at the present juncture, farm laborers are not effectively organized and are excluded from most social legislation, their entrepreneurial influences upon the farm enterprise in which they are employed is practically nil. Hence, under present conditions, the number of hired laborers per farm can serve as a measure of stratification in the distributive pattern.

(5) Synthesizing the productive and distributive aspects of agricultural efficiency in relation to tenure systems, I venture the following suggestions:

(a) In those lines of agricultural production where large-scale enterprise organization does not appear to be unquestionably and substantially superior in *socio-economic* productive efficiency over the family sized farm enterprise, maximization of the social net product *and* of the equalitarian character of the distributive pattern is facilitated by the tenure systems of farm owner-operatorship and/or tenant's freedom of management and security of occupancy. Under present technological conditions, this seems to hold true for those types of farming characterized by diversified rotations and intensive livestock enterprises.

(b) In those lines of agricultural production where large-scale enterprise organization does lead to substantial gains in socio-

economic productive efficiency over the family-sized farm, maximization of the social net product is facilitated by large-scale farming, and its unfavorable effect upon the distributive pattern in the direction of stratification can be minimized by vesting certain appropriate entrepreneurial functions in organized groups of farm laborers and governmental agencies, and by redistribution of income through certain appropriate subsidies. These technological conditions may prove to apply to types of farming characterized by "mono-culture," by specialized production of certain market crops such as small grains, citrus and certain other fruits. It is doubtful whether cotton falls into this category, as the continued production of cotton, particularly on upland soils, appears to require more and more a combination with other crops in diversified rotations.²⁵

- (c) Throughout the greater part of the agricultural sector of our national economy, the possible sacrifice in socio-economic efficiency of agricultural production involved in retaining the family-sized farm as the basis of agricultural production organization is probably not great, particularly not as long as unemployment in industry is large and aggregate industrial output not rapidly expanding beyond present resource capacities (exclusive of war demands). Under present conditions, increases in entrepreneurial farming efficiency involving concentration of entrepreneurship and net displacement of farm people are likely to be more than offset by social costs entailed by the resulting dislocations.

²⁵ There are, of course, many other factors determining the relative advantage of large-scale over family-sized enterprises. In the Cotton Belt, particularly in the Mississippi Delta, large-scale farming as represented by the share cropper system is likely to remain more efficient as long as the managerial responsibility of the share croppers is very low and undeveloped. Their discussion clearly falls outside the scope of this paper.

PROGRESS OF TENURE GROUPS

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In the first place, what is progress and how does it apply to the subject at hand? A rational understanding of progress has been the subject of disputation by social philosophers from Lucretius down to the present. Yet no agreement has been reached. Obviously the difficulty inheres in the fact that judgments of what constitutes progress cannot be made without evaluations, and as yet no scientific instruments have been developed by which evaluations can be objectively measured. Presumably people everywhere and at all times have been interested in bettering their conditions. All science has human welfare as its ultimate goal, yet that goal remains undefined. By the same token science has been unable to develop criteria by which progress may be measured. However, once a goal has been decided upon, science may measure the drift in the direction of that goal or even definitely contribute toward its realization.

It thus comes about that in the field of tenure relations various individuals or groups of individuals have set up certain standards or goals, the movement toward which, in their estimation, constitutes progress. It would be possible to enumerate a number of these goals and by noting the direction of change in these particulars to determine whether or not the change indicated progress. But such procedure is open to practical as well as scientific objections. In the first place, there is wide divergence among tenure students as to the desired ends to be attained even on some of the most fundamental tenure problems. In addition in many cases where the ends are more or less identical, the methods by which they are to be achieved are so varied as to defy an accurate measurement of progress. At a recent conference on land tenure of the west south central states, 25 questions of specific but fundamental importance in land tenure were submitted to the 18 specialists participating in the meeting. After discussion the participants were asked to vote for or against the propositions presented. In 22 out of the 25 questions there was a divided opinion, and only on 3 questions was there a unanimous vote. The first of the questions upon which there was unanimous vote related to whether or not there should be legislation requiring written leases for managing tenants and share croppers. The vote was unanimous in both instances against such legal requirement.

This illustration suggests several things. In the first place, it is obvious that the goals of tenure relations are not very well agreed upon. Then too in those items upon which there was unanimous

vote the supporting premises of apparent agreement may have varied so greatly as not to constitute essential agreement after all. Although voting unanimously against the adoption of legislation requiring written leases there was undoubtedly considerable variation in the individual arguments underlying the votes. In fact under other circumstances it is possible that a number might have voted for rather than against the proposition. If additional specialists from other sections of the country had been added to this group it is almost certain that the differences of opinion, not to mention the difficulties of terminology, would have been considerably multiplied.

Despite the above limitations in dealing with the subject of progress it still seems desirable that some attempt should be made to measure the direction of growth in tenure relations—some measure that could be generally applied and which constitutes a fundamental underlying factor. As already indicated, the theories of progress down through the ages have been many and varied, each proponent seeing the ultimate solution of the ills of mankind from his own particular point of vantage. None of these theories can be applied directly to the matter of tenure, yet underlying them all seems to me to be fundamental element of control—the control of man over nature for the satisfaction of his needs. This underlying element of control would seem to have a peculiar and very pertinent application to the field of tenure relations. Translated into terms of man's relation to the land it may be thought of as the amount of control exercised over the use of the land and the instruments of production by the farmer who actually tills the land.

The measurement of such control can be made objectively, but the determination of the amount that is most desirable for the tillers of the soil immediately raises a problem of social philosophy—one of evaluation. At this point, I therefore wish to make an evaluative assumption to the effect that in a democratic society the passing of the control of the land out of the hands of the tillers of the soil is a bad thing and conversely that increased control in their hands would be highly desirable.

The assumption for the desirability of control of the land by the farmer is based, it should be noted, on the further assumption of a democratic form of government. Democratic government, in fact, the original assumption. If this assumption is accepted, then it would seem logically necessary for the control of the land to be largely in the hands of those who operate it. This is not the place for a lengthy discussion of the meaning of democracy nor of the methods which might be used to return the control of the land to the people who operate it. The simple assumption is that if we have

democracy, then the control of the land and the instruments of agricultural production must be in the hands of the farmers themselves. If it is not, then the nation must be drifting into some form of government at variance with democracy.

"The people's power to control together every aspect of their lives, which is the essence of democracy, is the power to change the ways in which they live together, according to their need and desire. . . . In practice democracy means also the development of all instead of the few. . . . If it does not progressively accomplish this it ceases to be democracy. Only by increasing knowledge and intelligence throughout the population, only by spreading the spirit of service to others, which is the one justification that aristocracy at its best has to offer for itself, can the people hold power after they win it. Continuous movement toward social equality is the essential condition of the maintenance of the people's power."¹

Control in tenure relations is therefore fundamental to the people on the land. It is even more fundamental than security. Security is not all that people want. They want first of all to be in such control of their affairs so that they will feel adequate to meet any situation which may arise. Security involves a philosophy of defeatism and is usually pitched at a fairly low level. Control implies the ability to do what one wants to do—to be either venturesome or conservative. Most people would doubtless control their affairs in such a way as to bring security, but the security in and of itself is deadening. What most folks want is a chance, but to make use of this chance they must be equal to the situation at hand. If they are not, that is to say, if their opportunities are greater than their abilities, then these abilities need to be strengthened. This is the function of a democracy—to strengthen the hands of the people. Most people are adequately endowed so far as their inherent physical and mental qualities are concerned so that their development rests mainly on educational opportunities. If with this development of individual abilities, it is still impossible for the individual to get along satisfactorily, then the difficulty lies not with the individual but with the social organization.

In the practical application of the control of the farmer over his production it should be pointed out that this does not always necessarily mean individual control. In fact the pooling of this control with others is one of the most effective procedures in many matters. This is probably increasingly true with the introduction of machine methods of farming and at the same time the evident necessity for smaller farming units in many sections.

What then, is the situation as regards tenure control? As Sherman

¹ Harry F. Ward, *Democracy and social change*, Modern Age Books, Inc., New York, 1940, pp. 51-52.

E. Johnson pointed out in a recent article,² "farming is considered the last stronghold for individual management units in our economy. Our six and one-half million farmers are supposed to be operating as they please. But as a matter of fact, most farmers share their management decisions with others, and in some cases may have little if any voice in management. Especially on the commercial farms, separation of management responsibility from the farm operator has taken place along three principal lines: through the landlord tenant relationship; through the debtor creditor relationship; and through the public programs and certain regulatory activities."

Heretofore, the rapid increase in tenancy, with its consequent loss of managing control by the actual tillers of the soil, has been stressed but as pointed out by the President's Committee Report on Farm Tenancy, "the farm groups whose current relationship to the land is unsatisfactory are clearly not all tenants, any more than the relationship of all tenants to the land is unsatisfactory." The implication of this statement is that the satisfactoriness of the arrangement does not necessarily depend upon whether the tiller of the soil is an owner or a tenant, or possibly even a laborer, but on other items which supersede these factors in importance. It is the thesis of this paper that the satisfactoriness of the arrangement can be measured primarily by the amount of control over the land and its production by the actual tiller of the soil. Some owners exercise almost complete control, others very little. Some tenants exercise a great amount of control, others scarcely any at all. From the standpoint of the "bundle of rights" to the control of the use of the land it becomes obvious that not in all instances does the so-called owner exercise the greatest number of rights or the tenant exercise necessarily the fewest. In other words, the classification of tenure relations on the basis of control cuts across the conventional tenure classification. Share tenant may signify extreme variations in the amount of control even within a given region. But when the term is used for example, to cover a type of tenant in two regions as different as the corn belt and the cotton area it becomes largely meaningless not only as regards the degree of control but from a number of other angles as well. The careful observer will note many differences between the two, and the casual observer would probably not regard them as belonging together at all.

This line of thinking therefore raises a second major question: What are the tenure groups and how are they determined? If con-

² Managing the farm by long distance, *Land Policy Review*, 3 (5): 25-27, September, 1940.

ventional classifications are not sufficiently meaningful, then what criteria may be suggested.

In approaching this question it is needful to see that one tenure group cannot be understood apart from its relationship to all other tenure groups. The relation of tenancy to other tenure groups was recently pointed out in this way. "Tenancy rather than tenure has occupied the center of attention of American economists and sociologists, but it is important to see tenancy as only a part of the whole tenure picture. Land tenure problems involve not only the landlord and tenant but also the owner-operator of a mortgaged farm and his 'lendlord', the lending agency, the retired farmer who retains an interest in the land as he 'retreats' from it, the farm laborer who anticipates buying land, and the government in its relation to tenure."³

The need for understanding the relation of all tenure groups to each other arises in part from the fact that the groups do not remain constant. The members of the groups are constantly interchanging. Moreover under present conditions of mechanization some members of the agricultural group are being pushed practically entirely out of the group—but they still condition the situation of those who remain. It is the total population in relation to the land which must be considered and not simply those who have some particular reference to it.

This merely emphasizes in another way the need for an effective classification of tenure relations. The matter of control has long been considered an important element but it has not as yet been made the basis for a careful tenure classification. Probably the nearest approach to this has been through the legal distinctions between laborers and share-croppers. The crux of this legal distinction seems to be that, "A sharecropper does not have legal possession of or control over the farm and enters upon it by virtue of the same right that a laborer enters a factory, while a tenant has complete possession of and control over the farm during the term of his lease, and he may even prevent the landlord from entering upon the property unless such a right is reserved in the contract."⁴ Thus while the element of control is clearly the deciding factor, as pointed out by Marshall Harris, "it is uncertain in particular cases which factor or factors will be given precedence and what final decision will be handed down." The element of control would ap-

³ The committee on land tenure in the Corn Belt, *JOUR. OF FARM ECON.*, 22 (3) August, 1940.

⁴ Marshall Harris, Legal barriers that hinder improved tenancy relations. Quotation from unpublished manuscript by William J. Coleman and Alfred Hockley. *Proc. Ann. Agr. Conference for Southwestern States*, p. 21, prepared for distribution by the Farm Foundation, Chicago.

pear to afford a valid distinction but it would also appear that for purposes of scientific classification the criteria which determine whether or not this control is present would have to be enumerated in some detail. At any rate, criteria might be developed so as to determine whether the particular type of control on a given farm constituted that necessary to the condition of tenancy or that of a cropper. Studies which we have made in Louisiana indicate a wide degree of difference between individual so-called croppers as to the amount of control exercised over the land and farm management.

What then constitutes a tenure group and how is it arrived at? The conventional tenure groups of owner, cash renter, share renter, share cropper and laborer are well known but it is most difficult if not impossible to measure progress in terms of these groups because of their diversity. The order of the groups in ascending and descending scale is open to some uncertainty, and the status of the individuals within the groups vary greatly. With all the inadequacies of these groupings, however, they must be used until acceptable substitutes are developed for them. The procedure in the present analysis is that of overlaying these conventional classes with a control measurement.

Only a start has been made with no attempt to cover the whole field of tenure relations but only those which concern the tenant (including cropper) and the landlord. The problem here resolves itself into one of determining the division of the rights of control of the land and instruments of production as between the landlord and tenant.

To this end an attempt has been made in Louisiana to set up a classification of tenants based on the degree of independence of operation of the tenant. A total of 780 tenants from all parts of the State were classified on the basis of written questionnaire responses.⁶

The primary factor used to classify tenancy situations in this study combined several indices which measure the degree to which the tenant and the landlord divide the functions of credit and management.

This factor cuts across all other factors such as race, method of paying rent, size of farm, type-of-farming, written form of lease, kinship of landlord and tenant and other conventional classifications. The exact indices which were used to measure the amount of control of the tenant over his production, or what might be called his degree of independence were: (1) amount of supervision by the

⁶ For complete account of this study see, Ramsey, Ralph J. and Harold Hoff-sommer, Procedure in delineating type of tenancy areas in Louisiana and Farm tenancy in Louisiana, two reports now in process of publication by the Division of Land Economics, B.A.E., Washington, D.C.

landlord, (2) landlord's part in marketing the tenant's crop, (3) presence of a commissary on the farm, (4) proportion of production credit supplied by landlord and tenant, (5) landlord's part in supplying credit for tenant's living expenses and (6) nearness of landlord's residence to tenant's farm. All of these items were given equal weight, that is 1, except that the frequency of supervision if daily was counted as 4, if weekly as 3, if monthly as 2, and if occasionally as 1. This procedure resulted in classes of tenants with independence indices from 0 to 9. These were then classed into 3 major groups, the *independent tenants*, consisting of those with index numbers from 0 to 2, the *semi-independent tenants*, ranging from 3-6, and the *closely supervised tenants* with index numbers from 7-9. These groupings were selected because the majority of the descriptive factors changed at these points although the breaks were not particularly sharp.

Taking the whole group together, that is, all types of tenancy situations, an analysis of the data showed that as independence increased the percentage of tenants who were called croppers decreased. Likewise the percentage who worked for wages on the landlord's farm, the percentage of tenants who were colored and the size of the landlord's farm, as measured by number of families on it, also decreased. These trends appear to be very definite.

The average age of both landlord and tenant increased as independence increased. However, the owners providing the most supervision had been owners longer than those with more independent tenants. The tenants of the greatest percentage of the Negro landlords fell in the semi-independent group. The percentage of tenants related to the landlord was also highest in this group. The independent tenants were slightly less migratory than those closely supervised.

Possibly the best way of showing the groups based on control is to analyze them in terms of the conventional tenant classes. Of the group classified as independent tenants, that is those who performed 70 or more per cent of the managerial functions, 16 per cent were croppers, 48 per cent colored, 16 per cent were related to their landlords, 27 per cent had a written lease, 49 per cent rented all of the landlord's farm, 3 per cent were living on farms with over 10 other tenants, 11 per cent worked for the landlord for wages in addition to their other tenure arrangements, 17 per cent paid a cash or standing rent, 16 per cent paid one-half share rent and 67 per cent paid share rent other than one-half. As to age, more of these tenants were over 55 (25 per cent) than under 35 (21 per cent).

Comparing the group classified as semi-independent tenants, that is those performing from 30 to 70 per cent of the functions of

management and credit, with the independent tenants, a higher percentage were croppers, colored, worked for day wages, paid a one-half share rent and lived on plantations with over 10 other tenants. Fewer were related to the landlords, had written leases, rented all of the landlord's farm, and paid cash, standing or other than one-half share rent. Members of this group were also somewhat younger than those of the independent group.

Of the supervised tenants, that is those who had less than 30 per cent participation in management and control, there were 84 per cent who were colored croppers, 23 per cent lived on plantations with over ten other families and only 15 per cent rented all of the landlord's farm. Only 3 per cent were related to the landlord and 19 per cent had written leases. Seventy-eight per cent paid one-half share of the crop as rent. This was the youngest of the three classes, more than twice as many of them being under 35 as there were over 55 years of age.

What then, is the implication of these comparisons? Broadly speaking, the first indication is that wide differences exist between those grouped together in the present conventional tenure classifications. If control is fundamental, then these differences are fundamental. Obviously a great deal needs to be done in developing a control index, which is admittedly a complex task. Yet this would seem to be a fruitful direction of analysis particularly in view of the welter of difficulties and inaccuracies which the conventional classification leads to.

In conclusion, what is the evidence as to progress among tenure groups in the light of the foregoing analysis? Earlier in this paper it was stated that in a democracy, control must be in the hands of the people. Applied to agriculture this would mean that control of the land and the instruments of agricultural production should be in the hands of the agricultural workers. Present tenure terminology makes it difficult to measure the factor of control in much detail. The Louisiana data submitted, though covering only one phase of tenure relations, that of the division of control as between landlord and tenant, show that only a relatively small per cent of Louisiana tenants may be considered as having much voice in the management of their affairs and that a relatively high per cent are definitely dependent. This does not measure a trend but simply indicates a situation as of the time of the survey. However, when considered in the context of a general increase in tenancy in the State and increasing mechanization with the attendant worker displacement it would appear fairly certain that the present state of the tenant groups is not one of progress but one of regression. The number in these groups is becoming increasingly larger and it

likewise appears that the proportion of tenants who are dependent is increasing. The impact of the present trend of events is likely to be most severe on those whose relation to the land is the most tenuous. Thus, the casual agricultural laborer may be thrown out of his former connection with the land and his work handled by resident laborers. On the other end of the scale, the owner though reduced in control still maintains a degree of status. On individual points something that may be called progress in tenure groups is detectable, but if these smaller goals are within the framework of a general condition of loss of control over the land by the actual tillers of the soil they can scarcely be of fundamental importance.

DISCUSSION BY C. O. BRANNEN

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I shall confine my remarks to the paper entitled: *Legal Aspects of Land Tenure*.

The author has properly, I think, founded his interpretations of the characteristics of land tenure in American States on the most fundamental and controlling of all factors, namely, our system of private property and contractual rights relating thereto.

The essence of the whole matter is that the individual can own property and control its use, with only nominal limitations imposed by the different divisions of government and with full legal protection of unrestricted rights, and it follows as an inevitable corollary that he may sell, trade, or bind in contract all or a part of the values incident thereto for such length of time as he desires. Land is a form of property, and, although certain property rights relating to land and its products have been rather specifically defined in state law, the application of property rights to land is merely incidental. It is on this foundation that our system of land tenure rests, and there has been but little change in fundamentals from the beginning. The only other set of conditions which could be considered equally important are those relating to the rights and privileges of the individual, other than those pertaining to property rights, and these, so far as concerns land tenure, have been of little consequence since the Civil War.

The variation in forms of land tenure, however, has arisen more largely from economic causes. Whether the farmer is an owner, a tenant, or a wage laborer, in a particular situation, depends upon the resources or other opportunities at hand. The type of production also, to a considerable extent, determines the tenure pattern. The relative dominance of a particular form of tenure at a given location may be related to racial characteristics or cultural habits. The values derived or shared are the result of economic forces at work at the given time and place. Even so, each tenure pattern, in all important respects, must conform to, and thus be limited by, our system of private property.

I would summarize the main thesis of the paper in the following words:

"The fundamentals of land tenure in the United States are determined by our system of private property and freedom of contract, and opportunities relating to tenure reform are circumscribed thereby."

With this main thesis I find myself in full agreement. It is in connection with the explanation of the evolutionary background of our tenure system that I might disagree. For example, the author states, in substance, that the principles of land tenure law are deeply rooted in the derivative property system of feudal England under which the rights in a particular piece of land were derived from someone higher up in the hierarchy. I would not question the evolutionary process of the time and place, but I would question the relationship inferred from this illustration. Is it not more likely that the processes of commercial economy which were developing elsewhere, along with individual liberty and property rights, finally came to be used in the land tenure field? I have the impression that our whole approach in American States was exactly opposite to that referred to. The approach in feudal England was an evolution of rights and privileges handed down from the State to the individual, whereas the approach in this country, with possible exception in some of the earlier colonies, has been in the opposite direction, where the individual began with comprehensive rights but later had some of his rights taken away.

If it is intended to say, on the other hand, that our system of property rights in this country was derived from our English predecessors, who in turn were influenced by the principles of property rights handed down from ancient times, I would agree. The important consideration, I think, is the evolution of economic processes and practises in general, including personal and property rights, which were brought to America, without, however, particular reference to their adaptation in the system of land tenure in England. In other words, the personal and property rights established in American States were such as to result in the existing tenure patterns, because of the economic opportunities and limitations provided by law. While it is correct to emphasize the influence of laissez-faire economy on our situation, it seems inconsistent to associate the land tenure laws in England, which in principle were in the opposite direction, with the removal of trade restrictions.

The statement is made in the beginning that "land tenure is chiefly an outgrowth of culture." Since it has been shown and apparently agreed upon that our land tenure in general form is influenced principally by property and contract rights and in structural detail by economic forces, the term "culture" implies too broad a coverage for its best use here. The idea might be expressed more accurately as follows: "Land tenure in American States is the outgrowth of our economic system of free enterprise operating within the framework of statutory and common law."

ORIENTATION OF FARM-MANAGEMENT RESEARCH TO LOW-INCOME FARMS

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Farm-management research workers have often been accused of neglecting low-income farmers. This statement, usually made by persons interested in the social problems confronting this low-income group, can be challenged successfully, but we need to consider why such assertions are made. They originate in part from lack of a common approach to the problem. Some social workers in their zeal for economic improvement of low-income farmers become converted to panaceas that have been tried many times without success. They then become impatient with any farm-management worker who is not immediately enthusiastic about any and all plans put forward for the salvation of the low-income farmer. On the other hand, there is some basis for the charge that agricultural economists have neglected this problem. In fact, one can say with considerable validity that all agricultural research has been of most benefit to the higher income group. Some change in emphasis is needed if a proper balance is to be achieved.

It has often been pointed out that low-income farm families, with birthrates higher than average, are producing a large part of the national population increase. The social results of low income, such as inadequate diets, lack of medical attention, unsatisfactory educational and social advantages, make it imperative that farm-management researchers, as well as other agricultural workers, render every aid possible to this group. As far as their own field is concerned farm-management research workers probably will have to admit that some of the procedures developed for analysis of the larger commercial farms are not well-adapted for research in the low-income field.

The Problem

Assuming that the low income farm group is made up of all farm families on relief and those having family incomes under \$750, including the value of home-produced foods and the rental value of the dwelling, 41 per cent of our Nation's farmers (more than 2,800,000 farm families) were estimated to be in this class in 1935-36.¹ Approximately 25 per cent were below the \$500 income level. This is only a rough measure, both of income and of the size of the problem. It is recognized also that a given income results in better living

¹ Consumer incomes in the United States. National Resources Committee, Washington, D. C. August 1938.

for an old couple without children than for a family with growing children, or for a family with no debt than for one with a heavy mortgage.

For the purposes of this paper precise income delineation of the group is not important. However, we do need to consider classifications of low-income farmers based on characteristics that are the causes of low incomes. We are dealing with the group that is dependent upon farming for a living, with only occasional outside employment. Problems of the large group of part-time farmers primarily dependent upon other occupations require separate treatment, although some of the approaches considered here will also fit that group.

Farms are often classified into commercial and noncommercial groups on the basis of the proportion of total value of products sold, compared with those produced for direct consumption on the farm.² Low-income farms are found in both groups. In the commercial group, low-income farms are found in the cotton areas of the South, the wheat areas of the Great Plains, and the fruit-growing sections of the West Coast. In the noncommercial group are the farms in the Appalachian Mountains, the Ozarks, the Lake States cut-over areas, the Spanish-American areas in the Southwest, and the cut-over lands of the Pacific Northwest. The occupants of farms in this latter group ordinarily are simply aiming to get a living from the farm. Even noncommercial farmers must produce some product that can be sold in order to have the minimum cash necessary for purchasing the consumption goods they cannot produce. The farm-management problems of these two groups are considerably different.

The distribution of low-income farms indicates a major differentiation between areas where nearly all farms are in the low-income class and areas with generally higher incomes but with a considerable number of low-income farms interspersed among the successful ones. Analysis of low income farms in these two types of areas may throw considerable light on the causes of low incomes. Where nearly all farms are in the low-income class the quantity and quality of the land resources available per family are usually low. In some places it is unproductive land, in others it is good land but too many people. The paradox of rich land and poor people is essentially the result of overcrowding the land resources. The problem is aggravated by a tenure system which permits capitalizing into land values returns which would go to farm families if fewer tenants

² In the 1930 census farms were classified as "self-sufficing" if 50 per cent or more of the value of the product was consumed directly on the farm.

were bidding for land. In some areas, as in the Appalachians, are found both overcrowding and poor land.

In the wheat areas of the Great Plains and the fruit areas of the Pacific Northwest low-income problems are related to the hazards of weather and fluctuating prices. These are ordinarily highly commercialized farming areas of specialized type. Both types require large fixed investments that make shifts to other enterprises very costly. Problems in these areas have often been considered of a temporary or cyclical nature, and therefore of a kind that should be dealt with by assisting farmers through an emergency situation. However, the persistence of dry weather in the Great Plains, and the long-term price outlook for both wheat and fruits raises questions concerning need for permanent adjustments to more extensive alternative enterprises. Thus the problem comes down to poorly adapted types of farming and over-crowding for less intensive types, with the added problem of high costs of most adjustments.

Poor land is often of secondary importance as a cause of low-income on individual farms in areas with generally high incomes. Often a small amount of poor land is interspersed with good farming areas, and sometimes the farms are too small, but usually the causes of low income are to be found elsewhere. In these areas, low incomes are more likely to reflect the casualties of our competitive economy. Personal factors, such as family illness, lack of opportunity to gain a foothold, or limited managerial ability (which may often be traced back to environmental conditions) also may be reasons for low incomes. In any good farming area, there are older farmers who use "low pressure" operation of a farm as a device for partial retirement; also, in a cross section study, many farms will show low incomes for one year because of unfortunate circumstances, such as crop or livestock losses. We are not particularly concerned with the last two types of situations. This sketch is sufficient to indicate the variety of low-income farm problems; also their wide dispersion over the entire country.

Low-income farmers are with us, and public agencies, particularly the Farm Security Administration, are trying to improve their situation. What can farm-management researchers contribute? That is the challenge.

Through its rural rehabilitation program the Farm Security Administration has undertaken to provide farm-management supervision for its borrowers, who on June 30, 1940, numbered approximately 716,000. From the inception of the program in November 1934, until June 30, 1940, over 836,000 farmers received loans, standard and emergency, in the total amount of about \$480,000,000. Of this approximately \$95,000,000 was loaned during the fiscal

year ending June 30, 1940. Despite the magnitude of the Farm Security program the total number of families reached represents roughly 30 per cent of the total number of farm families with incomes under \$750. The inference should not be drawn that the special type of assistance offered by the FSA program is needed, or would be desirable on all farms with incomes under \$750. For each standard loan client a farm and home plan is developed. There is much basic material, including production standards and farm practices, applicable to rehabilitation borrowers, which the farm-management worker must supply if these farm plans are to be fully effective in assisting the rehabilitation supervisor and the farmer to make the maximum use of the resources available.

There is need also for farm-management information that will help guide the new land developments taking place in the Far West, where migrants from the South and from the Plains are attempting to gain a foothold. A similar need for guidance of new settlement exists in the Mississippi Delta and other new land areas.

Research Approaches

Most farm-management research on low-income farms has been either largely descriptive or has followed the usual lines of analysis. Farm business analysis surveys have been made and various factors related to labor income. Farm account records have been summarized and results of a given farm compared with the upper one-third, the lower one-third, and the average. An understanding of the problem is, of course, the first requisite for action, but pure description will not get us very far toward its solution; neither will blanket recommendations that more land or more capital is needed to increase the size of business, nor that the land is not suited for agriculture and should be planted to trees. Such recommendations may have application in some commercial farm situations, but most low-income farmers must make a living with their present land and capital resources, at least until other opportunities become available.

A considerable proportion of farm-management research has been concerned with determining the organization of resources that would yield the highest net income to management in a given area, and under prevailing or prospective price and cost situations. This approach assumes that land, capital, and labor have alternative market values, and that amounts used can be varied in proportions to achieve "the highest profit combination," with management as the fixed factor. To make farms comparable all records are converted to an owner-operator basis, a uniform charge is made for capital, and family labor is charged as an expense at hired labor

rates. When the analysis is completed the factors affecting profits in the assumed situation may have been determined but an abstraction that probably doesn't fit any specific farm situation has been created.

If we are to help low-income farmers make a better living we must face this kind of a problem: What can John Jones do to increase his income for the support of a large and growing family when he finds himself on a rented farm with poor buildings, when he is already heavily in debt for a set of old equipment and non-descript livestock? Rehabilitation supervisors encounter that kind of problem every day. Land, labor, and capital are not variables for John Jones. He can't get more and better land. Furthermore, his ability as a manager may be distinctly limited, so that even though other land were available to rent it might not increase his income and might even decrease it. Creditors will not lend more money for John to get better livestock or equipment. He and his family furnish the labor. Thus, land, labor, livestock, and equipment are fixed resources, and the problem becomes one of maximizing the return from them. A rehabilitation loan would only vary the amount and quality of livestock and equipment within narrow limits.

It is evident that John Jones' alternatives are closely circumscribed. What can be done to improve his present situation? He has a large family and therefore needs to produce as much as possible from the farm for home consumption. If he lives in a humid area perhaps the garden can be built up to take care of fruit and vegetable needs. Perhaps a surplus can even be produced for sale. The children can help with this work in the summertime. Milk, eggs, and meat are needed by the farm family. Can these enterprises take care of home needs? If feed and shelter can be made available, and the family can care for additional livestock, perhaps salable surpluses can be developed from these sources as well. But suppose the land is poor and won't grow an adequate feed supply: Can a rehabilitation loan or AAA payments be used to buy lime and fertilizer to build up production, at least for home needs? Can better production methods be used to increase cash received from the main income enterprises? Is there a woodlot on the farm that can be handled on a sustained yield basis to contribute a little cash each year? Can the landlord's permission be obtained to use slack-season family labor to improve the shelter for livestock or the family living quarters? Perhaps even a little employment off the farm is possible.

These are only a few of the questions that come up when we begin to analyze actual cases instead of abstractions derived by the averaging process. But so far we have only some questions—some ideas

concerning possibilities for improvement. What are the impediments to adjustment along these lines? Is John Jones capable of carrying out such a program? Does the county rehabilitation supervisor have enough time to help him over the rough spots? What steps must be taken to put the program into action? Will the landlord cooperate, etc.?

The next question that arises is how can we measure the low-income operator's progress in improving his economic position? On John Jones' farm how can we determine the economic effects of the changes we suggest? The labor income concept was developed as a measure of economic success on commercial farms—an index of efficiency in organization and operation of a farm. It was not intended to measure income to farmers, but attempts have been made to use it in that way. However, to attempt to distinguish between economic results of farming and income to farmers is unrealistic when applied to low-income farms. This is true, partly because no consideration is given to living from the farm, but also because family labor is charged at hired labor rates, and the tenure and mortgage situation of farmers is standardized. Is it valid to assume, even on large commercial farms, that differences in these factors do not affect to some extent the organization of the farming system and its operation?

To illustrate the desirability of developing different measures of economic results on low-income farms, let us use a conventional labor-income pattern for a given farm and then state the computations for that same farm under typical situations of tenure, debt, family labor, and family living from the farm.

Conventionally, John Jones' business appears as follows:

Value of farm.....	\$5,000
Value of livestock and equipment.....	1,000
<hr/>	<hr/>
Total farm capital.....	\$6,000
Farm receipts, including inventory increases.....	1,000
Farm expenses, including inventory decreases.....	700
Goods and service.....	\$450
Value of family labor.....	250
<hr/>	<hr/>
Farm income.....	\$ 300
Interest on capital at 5 per cent.....	300
<hr/>	<hr/>
Labor income.....	\$ 0

The value of family living from the farm has been estimated at \$300.

Now, if John Jones is renting at a cash rent of \$250, the labor income would not be changed. However, the family would have \$250 less to spend, this being the amount paid to a landlord that other-

wise would be available to John's family as interest on his capital. Suppose the figures are rearranged to show the effect of different

TABLE 1. INCOME CALCULATIONS UNDER SEVERAL ASSUMPTIONS

Item	Owner farm		Tenant farm	
	Debt free	With debt	With debt	With debt
	Family labor	No family labor	Family labor	No family labor
	High farm food	Low farm food	Low farm food	Low farm food
	<i>Dollars</i> 1,000	<i>Dollars</i> 1,000	<i>Dollars</i> 1,000	<i>Dollars</i> 1,000
Cash farm receipts.....				
Cash expenses (not including real estate taxes, rent, interest, and hired labor).....	350	350	350	350
Real estate taxes.....	50	50	—	—
Cash rent paid.....	—	—	250	250
Interest paid (5 per cent on real estate, 6 per cent on equipment).....	—	155 ¹	30 ²	30 ²
Hired labor.....	—	200 ³	—	200 ³
Total cash expenses.....	400	755	630	830
Receipts less cash outlay.....	600	245	370	170
Inventory change (depreciation included).....	-50	-50	-20	-20
Net result.....	550	195	350	150
Family living from farm.....	300	150	150	150
Family net income from the farm.....	850	345	500	300
Interest on operator's equity (4 per cent on real estate, 5 per cent on equipment).....	250	125	25	25
Net returns to family labor.....	600	220	475	275
Number of family workers.....	1.5	1.0	1.5	1.0
Return per family worker.....	400	220	317	275

¹ Assuming a real estate mortgage of \$2,500 and a \$500 debt on livestock and equipment.

² Assuming \$500 debt on equipment.

³ The amount indicated for hired labor assumes that less labor will be used when it has to be hired; therefore \$200 represents less than one man hired for half the year.

tenure, debt, family labor, and family living from the farm, as shown in table 1.

In the rearranged tabulation we have assumed the same farm, livestock and equipment; also, for simplicity, the same receipts

and operating expenses. We now see, however, that the economic results to the farmer are quite different depending on his tenure, debt, and labor situations. Over the longer term, income must be sufficient to provide a living for the farm family and to maintain the farm plant. Thus the important items are the ones we have labeled "net result" and "family living from the farm." These two indicate how well the family can afford to live. The important question is how contemplated changes in the farming system will affect the "family net income from the farm," as this term is used above. Even this rearranged income statement involves some arbitrary valuations. We have no adequate means of evaluating the contribution of the farm to family living. It would help if nutritionists would give us a set of physical substitution values for home-produced food. Such values might be similar to the feed units, or net energy values, that we use in livestock feeding. These measures could be either translated into economic terms or used as a measure of physical well-being.

The item shown as interest on the operator's equity is of course an arbitrary computation. It is used only because some allowance needs to be made for differences in operator's investment in order to compute a "return per family worker" as a measure of economic success. This measure represents a residual income determined by deducting a "normal" return on the operator's investment. However, the return to the farm family for its labor and management efforts and for its investment is by far the most significant index of economic results. It is this item that we are attempting to maximize by improvements in the farming system.

In the illustration, it is evident that the owner-operator, with no debt, with family labor available and organized to provide a relatively large amount of family living from the farm, not only has the largest income available for the family, but is also in the strongest position to meet unforeseen adversity. He has the smallest cash outlay, and if necessary he can use for family living the entire sum above cash expenses in any given year without greatly affecting his security. At the other extreme, the tenant-operator who owes money on his equipment and who has to hire labor is in an insecure economic position. If he cannot pay rent or interest, he may lose his chattels and may have to leave the farm.

Do these different tenure, mortgage, and labor situations have any effect on the system of farming that is most feasible at a given time—even on the same kind of a farm? We believe they do. For instance, an undertaking that involves some risk of loss but may turn out to be quite profitable is much more feasible on the owner farm without debt. Farm-management studies that ignore such

differences as these cannot be of very great usefulness to low-income farmers.

This conclusion brings us to the question of the criteria needed for grouping low-income farms for analysis. When a sample has been drawn from a given area, subgroupings will usually need to be made on the following factors in order to have groups of farmers with roughly similar adjustment opportunities: (1) Quality of land, (2) size of farm (total acres, or acres tilled), (3) tenure, (4) indebtedness, (5) age of operator, (6) supply of family labor. When such a classification has been established it will usually be discovered that not all these different situations are found on a sufficiently large number of farms to justify a detailed analysis.³ From that point on, it is likely that the greatest contribution will be made through detailed case studies of farms that are representative of each one of the important subgroups.

The case studies will need to be approached in such a way that the rehabilitation supervisor and the farmer can take the results and use them in specific situations, or at least make adaptations from them to fit given situations.⁴ Help from the agronomist will be needed on improving the cropping system; from the livestock specialist, on feeding methods; and from the horticulturist and the home economist, on setting up the garden to meet family living needs.

A comprehensive approach to a study of low-income farming in an area will also need to include consideration of the institutional factors that affect both the economic and social status of the farmers. On the economic side, for instance, opportunities for part-time work and costs and adequacy of local government need to be considered. On the social side the religious, educational, and recreational phases are important. One needs to explore the total economic and social resources that might be available to meet the needs of the people of the area. A complete inventory of a sample area may be needed in some instances to prevent the overlooking of potential resources that are not utilized at the present time.

In many instances carrying out the farm-management suggestions will not result in large increases in net income—perhaps only \$50—but that may be a 25 per cent increase on many low-income farms. However, the income may still be too low for a satisfactory level of living. Further increases would be dependent upon making

³ Neil W. Johnson, Sorting and sampling farms for soil conservation research. Bur. of Agr. Econ. Oct. 1939. (Mimeographed.)

⁴ The individual farmer and the rehabilitation supervisor are both dealing with individual situations, but cases that represent a prevailing pattern can probably be adapted to fit the special circumstances in most instances.

other land and capital resources available, or upon the possibility of outside employment: In some cases, and for some individuals, rural relief may be the only answer.

Use of Research Results

Farm-management researchers, having studied a low-income farming area, may reach the conclusion that there is little opportunity to increase farmers' incomes unless radical changes can be made in systems of farming. Suggestions may be developed for new ways of farming in the area, but how can these suggestions be tested out? Several years ago this problem was stated as follows:

"Many farm-management workers have at one time or another, when studying the farm-management problems of an area, formulated hypotheses that some form of farm organization or some method of management not to be found even on a single farm of the area would result in a better utilization of the resources of some or all of the farms of the area, than in existing organizations or methods. Since no facts are readily available to prove or disprove such hypotheses, they usually remain in the realm of the 'theoretical' or 'hypothetical' until some farmers 'try them out' and provide the facts. Even if the researcher undertakes to study by the case method 'innovations' in farm organization and management concurrently with the first trials by farmers, the researcher has placed himself in a position of a follower rather than a leader in the development of improved organization and management. When we realize that now there are to be found in many parts of the country, systems of farming and methods of operation which were not in existence a decade ago, and that many of these newer systems and methods are better adapted to present conditions than were even the best of those in existence 10 years ago, and that in most cases results of farm-management research have *not* been used in the development of these new systems and methods, we are compelled to admit that out work has not been as useful and helpful to farmers as it might have been. . . . A more general use of the experimental method would certainly help farm-management research to 'get at the head of the procession'."⁵

In the absence of experimental testing, new systems of farming that seem to offer better returns are not likely to be tried out in poor farming areas. Farmers with low incomes have "no margin for error," they must farm conservatively. They cannot afford to try new things if the new methods or systems of farming involve a

⁵ Research in farm management. Social Science Research Council Bul. 13, June 1932, p. 178. Comments by H. R. Tolley on: Experimental method in farm-management research.

possible loss. A loss of \$100 may be relatively unimportant to many farmers, but to a low-income farmer, it may mean hunger or other severe distress for the family. Furthermore, new systems of farming usually require new investments, and usually, neither funds nor credit are available to the low income farmer.

On the other hand, Federal agencies for several years have found it necessary to advance large sums of money for family living in low-income areas. They are groping for means of placing these families on a self-supporting basis. Many panaceas have been offered, and some have been tried out. Public agencies dealing with the problem are forced by circumstances either to continue grants or to experiment with rehabilitation devices. In such a situation, farm-management researchers should have a wide open market in which to test their suggestions for new farming systems.

We do not have in mind elaborate and costly experimental setups. On the contrary, we are suggesting testing out farming systems that seem adapted for "low pressure" farmers. Several systems of farming, perhaps new to a given area, might be used to test suggestions developed as a result of studying the case farms already mentioned. All that would be required would be insurance to farmers who tried out the new systems that they would be no worse off at the end of the trial period than they would be if they continued their usual system of farming.

In making suggestions for new ways of farming, farm-management researchers will need to strike a middle ground between the panacea peddlers and those conservatives who refuse to recognize that any systems of farming are possible that have not been tried and tested by farmers in the area. Farm-management workers are perhaps most likely to err on the conservative side. Therefore it is important to point out that all physical potentialities should be explored and their economic possibilities analyzed—new cash crops, new methods of pasture improvement, new methods of handling livestock, farm-woodlot improvement, new machines adapted for small farms, cooperative approaches to production problems, etc. The major opportunity might be found in creating new employment by utilizing resources, such as forests, that are relatively unused at present.

At Cooperstown, New York, the Forest Service has established a cooperative processing plant and service for farmers which makes available technical forest-management advice in order to insure sustained yield and maximum use of the forest resources. The cooperative sawmill insures that the maximum use and maximum return will be made for timber brought to the mill and makes possible the marketing of more of a farmer's timber, and incidentally,

more of his labor. A modern mill can use short logs in the making of furniture bolts, flooring, etc., a market for which would ordinarily not be available to farm-woodlot owners. In addition, the sawmill employs local unskilled labor, and particular effort is made to utilize the labor of members when they are not employed in their farming operations. This undertaking is financed by the Farm Security Administration. Fifty per cent of the farmer-members must be from the low-income group. The program is still on an experimental basis, but it should be followed closely because it gives promise of offering a partial solution to the problems of farmers in low-income areas where forest resources are available.

Policy Implications

The discussion up to this point has involved consideration of adjustments that would improve the situation for low-income farmers over a time period that might be characterized as "middle term"—say 5 to 10 years. It assumes that for lack of other alternatives, many farmers will find it necessary to stay in the areas where they are now located and to realize as high a return as they can from the land, buildings, equipment, and family labor that for the time being are fixed resources. It assumes also that it is futile to tell low-income farmers that they cannot make satisfactory incomes where they are, and that they should go somewhere else if there is no other place to go.

For some farmers, especially those in the younger age groups, a "somewhere else" may develop at least temporarily as a result of the war and the defense program. However, it will be necessary to guard against eventual unemployment of workers absorbed in industry during this period of rising industrial production, and to prevent an involuntary back to the land movement with all its consequences, including the creation of new rural slums.

If we consider a "long-term" time period, the only *fixed resources* are land and improvements that tend to merge with the land. Thus over the long term and from a theoretical standpoint, it would be possible for the population to adjust itself to the varying productivity of natural resources in such a way that labor and management of equal ability would receive the same return regardless of location, and whether they were engaged in farming or some other industry. Such an adjustment assumes opportunities for full employment of the working population. One can be pessimistic about ever achieving an adjustment of that type, and still hope and work for adjustments that will result in a better balancing of population and resources than exists today.

Many socially minded agricultural economists hesitate to start

on a program of increasing incomes to all farmers in an area that is badly overcrowded because they feel that to do so would only perpetuate a bad situation. They ask, Why should not some farmers move out so that those who remain can earn incomes more in line with other farming areas? There is more room for expansion of production in industry than in agriculture, and why should the whole burden fall on agriculture, and especially on the poorer farming areas? If it is necessary to divide up the resources within agriculture why not move some farmers from poor land into the fertile farming areas of Iowa and Illinois?

These questions illustrate the "long-term" approaches to this problem. They are concerned only with the economic aspects of the problem. They do not consider that it often is not feasible to uproot families planted in a given community, nor that some non-economic considerations might make it desirable to retain a greater population in a certain area. However, these questions do bring out the need for a "long-term" as well as a "middle-term" goal. Where the ratio of population to resources is disproportionately high we need to open up all possible avenues of escape, through education, vocational training, placement, etc., at the same time that we work on the problems of improving incomes for the next few years. The best way to guard against building up a permanent peasant class in agriculture is to provide means for the younger generation to escape from such conditions.

Some of our agrarian-minded friends will insist that we do not want them to escape. They say that living in the open country yields values both to the individual and to society that cannot be measured in dollars—that democracy has its roots in the isolated, self-sufficing farming areas that have not come in contact with the corroding influence of the city. One answer to this argument is that it assumes a minimum standard of health, food, and shelter that often is not found in low-income farming areas. Another partial answer is that it is quite possible with modern transportation to combine rural living and nonfarm employment. A part of this argument probably we have to accept, namely, that as long as our society cannot provide full employment, subsistence farming represents a better alternative than a dole—a product is created with effort that would otherwise be wasted. But more than food subsistence is required to maintain a family, and we like to believe that better alternatives will be available for the generation growing into maturity.

If nonfarm employment does not develop over the longer term, and as a Nation we are forced to support a relatively larger group in agriculture, it may become necessary to organize "small holding"

movements in this country somewhat comparable to those in Europe. Such a program should frankly recognize that all of the produce from the farm above operating expenses and maintenance of the farm plant was needed for family living. Farms set up on this basis might yield a satisfactory income to the farm family, but no return would be available either for interest or amortization on the farm plant. Such a program might be much less costly than continuous subsidy, but it would represent quite a departure from our habitual assumption that a farm should pay for itself with each generation of farmers.

The following classification of farms by scale of operations may be helpful in visualizing how "small holding" farms might fit into our agricultural economy.

CLASSIFICATION OF FARMS BY SCALE OF OPERATIONS

A. *Large scale farm*

Usually owned; often operated by hired manager; involves large investment and large amount of hired labor.

Income expected to cover: salary of manager or operator; wages of hired labor; other operating expenses; maintenance of farm plant; interest on entire investment at going rates.

B. *Large owned family farm*

Operated by family with some hired labor (1 to 3 men).

Income expected to cover: family living; wages of hired labor; other operating expenses; maintenance of farm plant; interest on debt; amortization.

C. *Large tenant family farm*

Same as B except that a rent item is substituted for interest on, and maintenance of real estate. Residual income, if any, probably accumulated for a future down payment on a farm.

D. *Family size owned farm*

Operated by family with only occasional hired labor (tenant purchase size).

Income expected to cover: family living; operating expenses; maintenance of farm plant; interest on debt; amortization.

E. *Family size tenant farm*

Same as D except that a rent item is substituted for interest on, and maintenance of real estate. Residual income, if any, probably accumulated for a future down payment on a farm.

F. *Small owned farm*

Operated by family, but perhaps too small to make most efficient use of labor resources (rehabilitation size).

Income expected to cover: family living; operating expenses;

maintenance of farm plant; interest on debt. No margin for amortization.

G. *Small tenant farm*

Operated by family but perhaps too small to make most efficient use of labor resources (rehabilitation size).

Income expected to cover: family living; operating expenses; maintenance of equipment; rent adequate to maintain real estate and to yield some return on investment.

H. *Small holding*

Operated by family, but too small to make efficient use of labor; contribution of both land and family labor needed for family living; thus too small for standard rehabilitation loan, unless it is owned and free of debt.

Income sufficient only to cover family living; operating expenses; maintenance of farm plant.

Many farms of the small holding size are in existence today. Once the investment has been paid for, and no return is expected on that investment, the farm family may enjoy a satisfactory living. If new farms of this size are created, no return on the investment should be anticipated. If it becomes necessary to establish farms of this size such measures should be taken without closing the gates to advancement into the larger size, higher income farm groups for the operators who are capable of climbing up the ladder.

DISCUSSION BY O. R. JOHNSON

University of Missouri

This interesting paper deals with a subject of current interest and one especially important at this time. The assumption serving as the basis of the discussion seems at times to be more expedient than valid. It will be necessary to question the validity of some of these assumptions. This questioning is intended to stimulate further discussion, and we will, therefore, at times take the position of denying the validity of the assumptions and then attempt to relate the criticism to the assumed policies.

First, the authors imply that social workers are concerned chiefly about "economic improvement" of low income farmers. Observation would lead one to suggest that a more correct statement might be of interest in raising the level of living, and that these social workers frequently regard lightly economic improvement, which the farm management research worker assumes must precede a rise in the level of living.

The impatience of the social worker with the more deliberate attitude of the farm management specialist seems to originate in the social worker's zeal to raise the level of living of the low income family regardless of who pays the bill or whether it is accompanied by an actual improvement in productivity of this low income family. The farm management worker is

more concerned about keeping plans for lifting the level of living as nearly as possible within a "pay as you go" limit. Temporary deviation from these criteria is admissible, but permanent planning for this low income family on any other basis will have difficulty in justifying itself.

The authors state that "all agricultural research has been of most benefit to the higher income group" only because they have been the ones able to take advantage of its guidance. Any improvement or discovery in any realm is of value first to those who can use it. If those working with low income groups were to make a careful inventory of the mechanisms they use in their attempts to rehabilitate these low income families, they will find that practically all of these mechanisms have developed from agricultural research findings or observations of ingenuity and planning ability on the part of our more capable farmers. This principle that "to him that hath shall be given" is not confined to agriculture.

We must certainly agree with the authors that emphasis must be shifted for farm business analyses of low income groups. The factors at work, however, are not essentially changed.

The authors comment that a part of the income assigned as a distributive share to land under our present setup needs to be reassigned to the family. I will grant that this seems desirable, but I would like to know under what kind of a tenure system this would be possible. Does our present system of land tenure have to accept responsibility for the present large number of tenants bidding for lands? Why were earnings ascribed to land rather than to people in the first place? How are you going to change the thinking of farmers who insist that their own efforts are not entitled to these earnings but that land really was responsible? You find this attitude among some of our better farmers. What else can you expect from still lower capability groups? May it not even be true that this is more nearly justified in their case than in the case of the more dependable operators?

Is it the farm management researcher's responsibility to rescue the low income farmer? Or is it his job to discover those conditions under which it is possible to achieve an acceptable economic return or to determine that under prevailing circumstances an acceptable economic return is very improbable? Is there any important industry in a free economy where there are not some ineffective units?

The authors seem to deprecate the fact that "farm management research has largely been descriptive." What has been the purpose of farm management research? Has it been to establish standards or guide posts for combining factors of production under certain sets of circumstances? The whole body of farm management principles seem to have been thus established. The farm management research worker cannot set up experiments to learn these things, nor does it seem that he needs to. The cost would be prohibitive and thousands of individuals furnish the laboratory where we can learn what we most need to know. Would a blanket recommendation that all farms below a certain physical production size must be enlarged to give an acceptable level of living get us just as far as a program involving permanent public subsidy to these inadequate units? If the land is too low in physical production to yield more than an East

Indian wage, why not plant it to trees rather than keep its occupants in a position of permanent dependence on public benevolence? Must not farm practice modified by practical possibilities continue to be the farm management research worker's guide post? It becomes something more than farm management if you lean permanently on the public purse.

To refer to the illustration of the hypothetical farmer, John Jones, and his problem, how could you help him if you did not have a broader experience and observation than his own,—if it were not for the long years of painstaking effort of the research workers in descriptive research to establish standards which would point the way to a more effective use of his resources, such as they are? One of your first decisions is whether or not he is capable of working his way out if you put in his hands a detailed road map or will he require constant and permanent supervision. Then will it cost less to rehabilitate him here than to keep him under some other set of conditions? These are questions which the rehabilitation supervisor must answer. The answers are probably dependent on the knowledge gained and the principles established in descriptive and historic farm management research.

I wonder if you are not optimistic when you designate as a "rehabilitation loan" aid extended to the client described? I wonder if it really does not call for some special definition of the term "loan"?

In referring to labor income studies the authors assert that these studies have uniformly overlooked the contributions of the farm to living or the part of the farm income which is available for living and saving. Long acquaintance with the research that has been carried on in various places would lead one to insist that this is only partly true since 1910 or 1912, when Dr. G. F. Warren began emphasizing "amount available for living and saving" and "earnings per worker per year." Farm management research workers have more or less thoroughly included living considerations in their studies. I do not even stop to give references, as these should be familiar to all.

Would a really adequate analysis on a low income farm be materially different from one used for a commercial farm? Probably we have neglected the non-money income aspects of the income picture on commercial farms.

The table showing income calculations presents a highly useful analysis. It is undoubtedly more necessary on the type of farm the authors have in mind, but should prove very helpful and fact revealing on commercial farms. If more analyses of this type were made, it might prevent in part much of the debt burden embarrassment and a false feeling of security present on many so-called commercial farms. It seems that an incomplete picture of the true situation was given in the exhibit presented by the authors as the type of available information they criticize. Modern farm management analyses are only infrequently as incomplete as this indicates. A study of a number of farm management analysis sheets does not indicate that the picture is necessarily as inadequate as the authors would lead us to believe.

Effective size of a farm unit seems to be dependent first on the gross physical production of that farm. As soon as you are sure that the farm is

a low income farm from the standpoint of physical production, the logic of grouping such farms and the purpose to be served thereby is obscure. It seems that each of these farms must be handled alone, and that the problem is one of reorganizing the farm business. The solution to this problem of making the most of the resources available will usually involve most of the subject matter of the production fields.

The comprehensive approach suggested is not an innovation. This is basic and consists merely of a rather complete inventory of resources and diagnosing of the difficulty. This always precedes prescription.

The authors comment that a farmer under these circumstances cannot afford to try new things. Just what constitutes a "new thing"? It is quite likely that the so-called "new things" have already been tried in many instances,—in some cases successfully and in some have been discarded as inappropriate. The historic research procedure of the farm management specialist is largely devoted to finding out under what circumstances these things seem to work. This would still seem to be a safer basis for recommendation on this low income farm than a recommendation based purely on logic or judgment. Most of us would hesitate to attempt to apply on one of these farms a system entirely new to the community and based only on judgment of the specialist. A system based on proven practices would still seem to be a safer starting point, and give maximum insurance against the loss of the few precious income dollars of this low income farm. It would seem these would protect the earnings more adequately than a purely "test" farming system. Most farm management workers are perfectly willing to incorporate new projects after all potential resources have been carefully evaluated and the logic of the reasoning carefully checked.

Part-time outside employment suggested is certainly pertinent, and if seasonal requirement problems can be allowed for, may offer distinct possibilities. There may be a question as to whether studies of outside employment possibilities are properly within the province of the farm management specialist.

At the close of their paper the authors suggest that there are agricultural economists who hesitate to start on a program of increasing incomes to all farmers in badly over-crowded areas, because this would perpetuate a bad situation. Just how would increasing incomes perpetuate a bad situation? Might not increased incomes take this area out of the over-crowded class? Also would it actually be possible to increase all incomes through developments on the particular farm units? Might we not find that to increase some incomes would require a command of more of the community resources than formerly, and thus leave less of these resources for other operators? This might lead directly to a reduction in the over-crowded situation by the elimination of those for whom costs of claiming an additional share of the community resources is prohibitive.

We can certainly find no fault with the authors' view that facilitating the movement of people away from low income farm areas is a proper long-time policy. Those who are inclined to grow over-enthusiastic about the advantages of fresh air and scenery must still remember that something must be added to these to maintain healthy normal lives. Even a willing-

ness to work is not a complete guarantee of income sufficient to maintain a reasonable level of health and decency. It seems that there is more danger of maintaining a perpetual low level of effectiveness by asking more of the resources, human and physical, than the community can supply and expecting to supplement these from public revenue than there is of effective use of that portion of human and physical resources which seems best suited to effective utilization, and continuing to search for other uses for those resources, both human and physical, which are not so well adapted to effective use in this situation.

DISCUSSION BY G. W. FORSTER

North Carolina Agricultural Experiment Station

The routine methods of farm-management research have been given, as they should, another resounding wallop. It has been pointed out, on numerous occasions, that these methods are defective even when applied to the organization of normal farms. Messrs. Johnson and Rush now hold, and correctly, that they are not adapted to the study of pathological conditions, such as the low-income farms represent. In most, if not all, pathological cases, the problem is not to organize the farm as a commercial unit, for money making, but that of improving the standard of living of the farm family and establishing a soil conservation program. In such cases the measures of success which may be used on commercial farms is in no sense relevant.

Although agreeing with Mr. Johnson and Mr. Rush in their major thesis, I think their discussion is too circumscribed. This is perhaps no fault of theirs but of the program makers. Farm-management research, whether or not it is orientated, does not constitute a solution to the problem of the low-income farms. The number of these farms is too great and their condition too varied to expect that the orientation of farm-management research will suffice. I doubt if the application of the best farm management technic can be applied to more than one-third of these low-income farms. If this be true, then other technics must be devised and put into effect. The fact is, or appears to be, that about one-third of these low-income farms have little chance of survival under present competitive conditions. By no stretch of the imagination can it be said that this one-third can be rescued by the assisted *laissez faire* methods envisaged by Messrs. Johnson and Rush. These farms are now beyond such a method of relief.

This group must be institutionalized. That is, put under the supervision of a trained technical staff and made to do what is necessary for their rehabilitation. And this would not, by any means be assisted *laissez faire*, it would be regimentation. For such a procedure we have ample precedent in the institutionalization of our feeble-minded and insane. The peculiar type of institutions and the methods to be used must be developed. Of necessity, they will not follow those used in caring for our feeble-minded and insane. These two groups are, in most cases, taken care of on institutional farms, but the lower one-third of our small-farm population is too large for such a method to be followed. Probably whole communi-

ties will have to be institutionalized. That this is necessary is no longer subject to doubt.

The middle third of our low-income farms must be treated in quite a different manner. In this group we have a potential reservoir of useful people. In most cases they can be, in time, converted into skilled laborers for industry. It is here that efforts should be made to lead these people, through vocational schools, out of farming. They should supply the demand for skilled workmen of all kinds. The point is, they should be taken out of farming and placed under competent leadership. At present, they are not competent enough to guide themselves and are destroying our agricultural resources.

The upper third have agricultural possibilities. And it is on this level that the oriented farm-management research should be applied. It is quite foolish, as we are now doing under "Land-Use Planning," to include all low-income farms in the same general scheme of rehabilitation. It will not, however, be sufficient to apply better farm management technics. We must also supply supervision. It is doubtful if any of the farms in this upper third can proceed under their own steam, even when shown how to operate the engine. It may be said, then, that the problem of the low-income farms is not simply one of farm management or the development of new farm management technics. Methods other than farm management must be devised and put into effect. Farm management technics, insofar as they are applicable at all, must be confined to the upper third of the low-income farms. And in this case the new technics must be accompanied by rigid supervision, if success is to attend our efforts.

DISCUSSION BY STANLEY W. WARREN

Cornell University

For the most part I find myself in agreement with the points made by Johnson and Rush. The following remarks are more in the nature of amplification of certain of their points, rather than differences of opinion.

Description of the Problem

We now know much less as to the reasons for low income than we should. We know that in some cases it is poor land, in some overpopulation on good land, in some poor management, in some unadapted types of farming. But what proportion of the 2,800,000 families come in each group, and where are the farms with each different problem located? Before we can do anything to solve the problem we must describe it. I agree with Johnson and Rush that "pure description is not going to get us very far," but we still need much more description.

Methods of Studying the Problem

Having described the problem the next job of the research worker is to find suggestions for improving the well-being of the families involved. In studying agricultural problems there are three major methods of approach.

1. We may run a controlled experiment to test the effect of varying some one factor or set of factors.

2. We may study the experience of farmers in the hope of finding the factors which are associated with variations in success.

3. We may sit in our office and figure out the answer. This might be called the arm-chair method of research.

The experimental method of research has been used very little in farm management (as stated by Johnson and Rush). Probably the difficulty of setting up a controlled experiment and measuring the effect of varying a single factor or set of factors is the reason.

The method of studying the experience of farmers involves the collection of data by either accounts or surveys. This method of approach assumes that there are variations in the success of farmers operating under similar environmental conditions and that a careful analysis of their experiences will point out why some were more successful than others. From this point-of-view low-income research would not differ from other farm management research in its basic assumptions.

Having made a complete description of the area, and having analyzed the experience of farmers, the question may still remain as to the possibility of a new idea. We shall then be in a better position to know whether the idea is new. I suspect that most of the researcher's "new" ideas will have been thrown out as not "new," but old and unsuccessful. However, if it still looks new an experimental approach as suggested by Johnson and Rush would be desirable. I heartily approve of their recommendation that the experiments be of a modest type adapted to a low-income farmer, rather than of the elaborate and costly type which has sometimes been set up.

Measuring Profits

The method of measuring profits is an old problem in farm management research. First we must decide upon our goal. I assume that our ultimate goal in a low-income area as well as in a high-income area is a better rural life. The question before farm management workers is "What can we contribute towards this?" It is presumptuous on our part to assume that we must handle the whole problem. Presumably the nutritionists, household management specialists, sociologists, health workers, and others will help on it. As farm management research workers we will probably contribute most by working on those problems which the name "farm management" implies. Our immediate goal is a better farm business. We have assumed, and I believe correctly, that a better farm business will help to make a better rural life.

At one extreme we have labor income as a strictly business measure. On the other side is the "amount available for living and saving during the current year"—a strictly personal measure. The following items may cause these two measures to differ:

- Family living from the farm
- Interest on the operator's equity in the property
- Unpaid labor
- Interest owed but not paid
- Taxes unpaid

Accounts unpaid
Depreciation of real estate and equipment
Decrease in livestock inventories
Decrease in feed and supply inventories
Relief
Pensions
Income from members of the family who work at other jobs
Borrowings
Gifts
Past savings

The question which a farm management research worker must decide is "How many of these items shall I consider?" The "operator's net income from the farm" as used by Johnson and Rush would consider the first three items listed above, but none of the others. Thus their measure is more nearly strictly business than strictly personal. The writer would suggest "labor earnings"¹ as a desirable measure of profits in a low-income area. It departs from the strictly business measure by including the family living from the farm. If our goal is a better farm business we must measure results in business terms, rather than in terms of the personal circumstances of the individual farmer.

Application of Results to Individual Farms

The study of the experience of farmers should establish guiding principles for the improvement of the businesses of low-income farmers. These principles must be applied to cases. When we get down to cases we find, as Johnson and Rush point out, that land, labor, livestock, equipment and management are relatively fixed. If these are entirely fixed there is no way of improving the farm business. However, there is usually a possibility of varying at least some of these factors. The difference between low- and high-income farms is in the degree of variability. In applying principles to individual farmers, the individual situation must, of course, be kept in mind. This is a problem of extension and teaching, rather than research.

Need for Research on Low-income Farms

The main problem of farm management research as applied to low income farms is that there has been little of it. I agree with Johnson and Rush that farm management research workers should give more attention to this important group of farms.

DISCUSSION BY PHILLIP F. AYLESWORTH

Farm Security Administration

Dr. Johnson and Mr. Rush have not attempted to present new, startling, and unique techniques and methods. They offer no panacea for the solution of this problem; rather, they have pointed out that some change in

¹ "Labor earnings" are labor income plus family living from the farm.

emphasis is needed—that some of our measuring sticks which have been used for measuring success of commercial farms may need to be changed for carrying on research aimed at the solution of those problems confronting low-income families. With a consciousness of the problem we need have no fear that the necessary adjustments in method will be made.

Agricultural research has been undertaken largely for the benefit of the higher-income group, the goal being to make the best more efficient, to speed up the processes of technological improvements and to make competition keener with the survival of the fittest.

Dr. Johnson and Mr. Rush have indicated some of the problems of this group, emphasizing the wide variety of factors which have contributed to its creation. In addition to the ones stated—pressure of population, specialized farming, poor land, and personal factors such as health and managerial ability, other contributing factors might be listed. Unsound tenure arrangements, the increase of the agricultural labor class, breakdown in rural credit, poor land use with resulting erosion, and other soil depleting conditions, increased concentration on specialized and cash crop production involving mechanization, and general agricultural maladjustments are likewise important.

The important consideration is that careful distinction be made between that group of disadvantaged families resulting from temporary or emergency situations and that group requiring basic adjustments to correct the problem.

In a further description of these low-income farm families and consideration of program two facts should be kept in mind:

1. Families in this group are largely outside the economic system for the major part of their living. Increased prosperity effects low-income farm families very little if they remain on the farm.
2. The goal of any program must be geared to permanent rehabilitation which provides human and land conservation and involves adjustments rather than temporary relief. We do not want to be caught in a program of attempting to discover how cheaply families can be cared for and maintained at a certain level, but one which makes permanent adjustments toward a long time program in which these families may attain a satisfactory level of living.

I considered the points raised under "Policy Implications" along with those raised under the discussion of "The Problem."

In attempting a solution of this problem there are those who argue that there are too many farms, that there should be fewer farms and farmer population. As Dr. Johnson and Mr. Rush have posed the question "There is more room for expansion of production in industry than in agriculture, why should the whole burden fall on agriculture, and especially in the poorer farming areas?" It is true that the answer must come largely outside of agriculture. The chief questions in this approach are:

- (1) "Can non-agricultural employment be stepped up so as to provide an outlet for this excess farm population?" and
- (2) "What devices are to be used during the transition period?"

We might say the first question is not within the realm of agriculture and farm management research but certainly the second one as to a program during the transition period is one of the most urgent problems. We need an answer to such questions as:

- (1) Should agencies such as FSA help to maintain families on a self sufficiency basis on land unsuited for commercial production? or
- (2) Should there be an immediate adjustment of these families out of farming in these so called submarginal areas by such means as a rural works program to furnish the needed resource with emphasis on vocational education and placement, until industry can absorb them?

On the other hand there are those who argue that farms and farm population should remain at its current level or be increased. The questions must then be asked:

- (1) What steps or devices can be used to develop new ways of agricultural life that will involve smaller cash expenditures (maximum self sufficiency) and
- (2) What new resources can be developed within agriculture (new crops, new methods, additional processing, etc.) to furnish additional income?

Research for low-income families involves these problems. There is need for a critical study of these suggested avenues of attack on the problem, as well as to measure effectiveness of present action programs aimed at the solution of it.

Research Approach

In order to accomplish this task there is need for change in emphasis in the research approach in farm management. A considerable portion of farm management research has been concerned with determining the highest net income to management in a given area. Low-income farmers have little chance to increase their land base, to buy additional livestock or machinery, or hire more labor. There is need for new measuring sticks for progress other than labor income and rate earned on investment and factors other than size of business, PMWU per man, % of land in high profit crops, etc., in measuring success for this group of families.

In measuring progress of FSA families "net family returns" and gain or loss in "net worth" are used in addition to the items of the "Farm Business Summary." Net family returns is the end product after calculating "receipts from farm, income other than farm, value of farm products used in the home, and increase in farm and household inventory" as "gross family returns" and subtracting "farm operating expenses, family operating expenses (cash and non cash), capital goods purchased and decrease in inventory." This gives the returns to family labor and farm capital above living and operating expense.

The calculation of the value of unpaid family labor and of interest on the investment would add little to this measure. On the other hand net worth needs to be shown as a parallel figure in order to determine whether the amount owed has increased or decreased and the net effect of increase or decrease in inventory.

Therefore, the labor income approach with summaries of a given farm compared with the upper one-third, the lower one-third and the average, does not give a sound basis for analysis of low-income farms. The subgroupings made by Dr. Johnson and Mr. Rush illustrate some of the necessary considerations in any comparison of groups of farms. Breaking down the data into sub groupings according to tenure, debt structure, family labor, home production of food and other factors helps to give a more realistic picture. However, this serves to emphasize that the true approach is that of individual analysis. Case studies need to be made which compare performance with planning for the various items of receipt and farm and family expenditures, and progress as measured by increased net worth. The most important use which can be made of data of this type summarized from farm family record books is for the purpose of translating the results of last year's activities into better plans for the coming year.

The ordinary farm organization factors must be supplemented not only in farm account summaries but also in planning with families. We have learned by progressive stages that there must be increased emphasis on diversification, intensity of production, tenure arrangements, use of co-operatives, debt structure, land use and conservation, health conditions, physical disabilities and self sufficiency in living and operating with emphasis on home production of food, fuel, construction and repair of clothing and furnishings, and production of feed, seed, fertilizers, livestock replacements and use of work stock for power.

In addition to the need for other factors in measuring progress of low-income farmers, there is need for an integration between farm management, home management and rural sociology. This is particularly needed if we are to insure that the results of the research are to flow into the stream of action so that they can be of maximum use. For example, research data showing only the cash income and expense items on the farm is of little importance in planning with families where such an important part of the living comes from the farm and where the use of income is one of the most important factors governing permanent rehabilitation and progress.

Likewise, the general economic pattern of the area, the land use, the governmental services and costs, opportunities for part time work, potential possibilities of new crops, and the utilizing of additional resources of the area must be considered.

Use of Research Results

In considering the use of research results I'd like to reemphasize some of the points made by Dr. Johnson and Mr. Rush illustrating some of the shortcomings of the research of the past and particularly those difficulties that we in FSA have encountered in attempting to secure help on these problems.

1. Research has been largely directed to the solution of the problems of commercial farming rather than the problems of all farms.
 - a. The factors for measuring success used in farm account studies have been those which apply only to commercial farming.

- b. The summaries of items of receipt and farm operating expenditures are not usable in planning for low-income farms.
2. Farm management research has given a post mortem picture rather than leading the way. It has been largely descriptive in character.
3. There has been a lack of integration between farm and home management. Research undertaken has failed to do complete planning recognizing the size and composition of the family.
 - a. Record books are divided into Farm Account and Home Account books in most cases with little or no attempt to coordinate the two.
4. Research has sometimes not been geared to practical conditions.
 - a. Elaborate and costly experimental set-ups have been made rather than using actual farm conditions.
 - b. The tendency has been to attempt to develop radical changes in systems of farming rather than simple approaches which might result in a small increase in net income.
5. Research results have not been presented in the most usable form. This statement may apply more to the production specialists than to farm management workers, yet it is nevertheless true.
 - a. Research bulletins appear to be written to impress other research workers rather than for their usability by farmers. It has been necessary for us in FSA to excerpt material from these bulletins and put it in one syllable words for use by our families.
 - b. Likewise, much of the material our supervisors need to use is so bound up with multiple correlations that they fail to make the application from it.

The FSA Approach

The FSA program has been mentioned as one of the most active attacks on the problem of low-income farm families. We in Farm Security, particularly those of us who have traveled in the program since its beginning, feel at times that we are making some headway. We have had to learn by doing and trying things to which there was no previous answer. The need for action was and is so great that there has been little time to stand by and measure the results or the methods of the program. We would like to study those families who have been rehabilitated, those who have graduated, and attempt to develop a correlation between certain conditions and successful rehabilitation in order that we might say "if these certain conditions are satisfied we may expect a high percentage of success."

Likewise, we would like to study those families who failed to make the grade. We would like summaries made of records of FSA families to furnish basic planning material as to what may be expected in the way of cash and non-cash income, farm operating and family living requirements of this group.

We have tried some new things. We would have liked to have waited until certain methods could be tested in an experimental way, particularly the things which everyone said wouldn't work, but we couldn't wait be-

cause the human need was too great. There is a source of data to explore and there is a need for answers. Here are our needs in FSA:

1. We would like to have the solution to definite problems.
2. We would like help to find new problems, and
3. We would like help in evaluating the effects of the program.

FSA Needs

There are numerous questions for which we would like answers, as well as materials which are needed.

1. Farm and Home Planning

- a. Development of pattern plans for various areas of the country.
- b. Manual of basic reference material on farm planning (yield, price data, outlook information, and expense items).

2. Tenure

- a. Study of stability of tenure on the part of the heavily mortgaged owner, the purchase contract holder, and the renter, together with a consideration of equitable rent and leasing terms.
- b. A survey of the problems of tenancy to determine whether or not our program has reduced the mobility of tenancy.
- c. The following questions need to be answered:
What are the effects of mechanization in crowding tenants off land?

To what extent are the returns of mechanization and AAA payments raising rents and being capitalized into higher land values?

3. Farm Operation

- a. Farm and home calendar of work. The farm and home calendar which will serve as a reminder to the farm family of the approved practices to be carried out with crops, livestock, garden and orchard, equipment, buildings, and family living operations.
- b. Briefed farm and home practice leaflets.
- c. Practices material on self sufficiency farms. What can we grow so we will not have to buy commercial feed for poultry? What kind of poultry house can we build with our own labor? What should we look for in buying secondhand equipment and machinery?

4. New Markets for Labor

Study of new crops adapted to fully utilize labor resources of the family, and new uses for family labor in processing, such as dressing poultry, selling graded eggs, fancy meat and vegetables.

5. Measurement of Progress

An analysis of record book information to serve as a guide for future planning and supervision of families, together with a comparison of Planning vs. Performance.

6. Health

- a. The limitations of health in rehabilitation of farm families, as shown by a survey of needs and causes.
- b. The effects of the Farm Security health program.

7. Land Policy

- a. Determination of the amount of subsidy necessary to set up and operate a family size farm which will provide for the purchase of the land, erection and maintenance of buildings, farm operating expenses, and a satisfactory level of living.
- b. What should be done with poor farms that will not support families and provide decent housing?

8. Farm Labor

Study of the source of potential migrants and the desirability of types of farming requiring migratory labor with permanent adjustments which might be made.

9. Cooperatives

Information on the opportunities for cooperative enterprises, together with measure of progress in the FSA program.

10. Loan Policy

Answers to such questions as:

- a. Should landlord be required to give a landlord waiver?
- b. Should tractors be refinanced?
- c. Should grants be included in order to balance sub standard plans?
- d. Should FSA finance borrowers who pay cash rent?

OBJECTIVE SAMPLING IN ESTIMATING SOUTHERN CROPS

D. A. McCANDLISS

Agricultural Marketing Service

In general two methods are available for obtaining information on which to base crop estimates. The method most in use, which is commonly referred to as a "subjective" method, consists of collecting by mail the judgment opinions of a large number of reporters concerning crop acreages, yields, production, or other items of crop information. These reports are then summarized, and the averages are used as the bases for estimates. The other approach is to take actual measurements of various factors which are correlated with crop production, and to use these "objective" measurements as the basis for estimates, thus eliminating so far as possible personal opinions or judgments.

With some types of information it would be very difficult to state definitely whether it is "subjective" or "objective." I shall not go into a discussion of these questionable cases, but shall merely classify as "subjective" the reports which are based on personal judgments or opinions, and shall consider as "objective" those samples which are obtained by actual measurements of one kind or another. I realize that this definition would probably be subject to argument, but since my subject was assigned to me without any other definition of terms, I shall take the liberty of making my own definition.

The collection of "subjective" information has one important advantage, in that it is relatively easy and inexpensive to collect reports by mail. This method, however, has some serious weaknesses, the most obvious being the fallibility of the judgment of individual reporters. Furthermore, their judgment often is biased by personal interests, especially in the case of cash crops whose prices may be influenced by the estimates when they are published. Another difficulty in collecting information by mail is that of obtaining a sample which is either representative or random.

These difficulties have long been recognized by those of us who prepare the Government crop reports. To overcome them we have worked along various lines to develop objective measurements which would be correlated with crop production, and which would not be dependent on the uncertainties of human judgment. In theory this would seem to be a much better and more logical approach, and one which would provide data less subject to errors and more adapted to critical statistical analysis than that provided by opinion inquiries.

Some progress has been made toward developing such objective measurements, but this progress has been slow and difficult. We have found that while objective data do not have the same sources of error as judgment data, many of them do have a host of other weaknesses which must be overcome before they will give a satisfactory basis for estimates.

In estimating prospective production of a crop, two principal problems arise. The first is to estimate the acreage of the crop available for harvest. The next is to estimate the probable average yield per acre. The production estimate is merely the product of estimated acres times the forecast or indicated yield per acre. Estimating acreage is quite a separate problem from estimating crop yields, and each of these problems requires a different approach; for this reason I shall discuss them separately.

Estimating Crop Acreages

In developing objective measures for estimating crop acreages, several methods have been tried. Most of these have used the Federal Census enumeration to establish the base acreage for a state, and the purpose has been to measure changes in crop acreages from year to year until the next Census is taken. This procedure makes it unnecessary to use a technique that would establish an independent base acreage each year, since the sole purpose is to measure year-to-year changes.

The first procedure for measuring such changes in acreages objectively was the "field count." For this a statistician travelled over a regular route through a state each year, counting the number of fields along the road that were planted to each crop. The hypothesis was that as the number of fields of a crop vary from year to year over this identical route, the total acreage of that crop would vary proportionately.

This hypothesis would be valid only if all the fields of each crop were always the same size each year. It is common knowledge that this is not true, but since any change in acreage is usually reflected in the number of fields planted, as well as in the size of fields, the "field count" did indicate the direction of such changes, even though it might not give a true measure of the magnitude of each change.

As an improvement on the "field count" method, another known as the "pole count" was devised. This also involved travelling over an established route each year and observing the crops adjoining the road. Instead of merely counting the fields, however, a count was made of the number of telephone or telegraph poles in front of each crop. The unit of measurement was not a field but a "front-

age" as long as the space between two poles. This procedure had some advantages over the field count method. It gave a rough measure of one side of each field and thus made some allowance for the varying sizes of fields. On the other hand, it assumed that all poles were the same distance apart—which is not true. A more serious objection was that it could not be used unless a telephone or telegraph line ran in front of the fields.

Although the pole count method was not much used, it did develop into a more refined method, because it provided the inspiration for making a device actually to measure crop frontages in lineal feet. This device has been called a "crop meter," and is a rather simple instrument driven by the speedometer shaft of an automobile, with which it is possible to measure the number of feet of each crop fronting on the road. The first crop meters were made in 1923, and measured only one side of the road, but later a double-bank machine was designed, with which the crops on both sides of the road could be measured at the same time.

The crop meter measures only the side of each field adjoining the road, and no attempt is made to measure the other dimension of the fields. At first thought this would seem to be inadequate, because obviously the area of fields would be the product of both dimensions. In practice, however, it has been found that in general the crop area tends to be proportional to the frontage of each crop. When the crop meter was first used this hypothesis was adopted without subjecting it to mathematical tests, because at that time we lacked facilities for testing it adequately. A recent study by Walter A. Hendricks,¹ however, supports the mathematical soundness of the hypothesis.

Although in theory it would seem that crop meter measurements should provide satisfactory objective data on which to compute estimates of changes in crop acreages, in actual practice they do not always do so. Inaccuracies sometimes result from various difficulties in the technique of taking the measurements. One cause of error is that the crop "front" is not always the same distance from the road, and as it recedes from the road the operator is in doubt about when to stop measuring it. This problem is usually worse in hilly country, where fields are irregular in shape and topography. In case of doubt the usual practice is to assume the crop front to be about as far back from the side of the road as the width of the road from ditch to ditch. This is not entirely satisfactory, but it has been found better than having the operator attempt to estimate some

¹ Walter A. Hendricks, Theoretical aspects of the use of the crop meter, Number II of a series of analyses of sample farm data. Manuscript now in process of publication by the A.M.S., U. S. Dept. of Agr.

definite uniform distance, such as 100-feet back from the road, as the basis for his measurements.

Another source of difficulty in operating a crop meter is that in some areas the crop cannot be seen because of dense hedges, embankments, or other obstacles along the road. Sometimes the crop itself is too young to be clearly distinguished, or has already been harvested before the measurements are taken. In other cases the operator cannot tell definitely how to classify a crop. For instance, it has not been found practicable to measure grass hay, because a field of grass may either be cut for hay or grazed off, or perhaps it may be plowed under without either mowing or grazing. Furthermore, there are a few crops which are usually not planted next to the road—watermelons, for example.

Experience has taught us also that different individuals vary somewhat in their technique of operating crop meters. The best results have been obtained where the same operator has taken the measurements over a period of years. Whenever operators are changed it is important that they work together for a while until the new one has developed the same technique as his predecessor.

Even with uniform technique in operating the crop meter, the measurements sometimes contain flaws which must be kept in mind in analyzing them. One is that crops adjoining highways are not always representative of all crops being grown in the entire area. For instance, in some parts of the country the roads usually follow high, well-drained land, in order to avoid having to bridge rivers and streams. In such cases, crops like cotton that are usually planted on the higher ground will be found along roads more than crops like corn, which are usually planted on bottom land. This may distort the relationship between measurements of different crops, but does not always invalidate comparisons of the same crop from year to year.

In many states roads are being relocated more or less, from time to time. When this takes place along the established crop meter route it is likely to affect crop frontage comparisons, because often the new road is located through territory that is less densely populated than that adjoining the old location. Usually this source of error is not serious in any one year, but over a series of years it may cause a trend that must be taken into consideration in analyzing the data.

In spite of all these difficulties, crop meter measurements do have certain advantages and they are particularly helpful under some conditions. For instance, when the numbers of farms are increasing or decreasing in an area it is almost impossible to measure these changes through inquiries by mail. Mailing lists do not

automatically expand with increases in numbers of farms. On the other hand, when farms are being abandoned the change is not discernible from mail inquiries. Even if returns begin to fall off this could result from so many other causes that we would not be justified in assuming it was caused by the abandonment of farms. Such changes, however, are caught at once by crop meter measurements.

The crop meter also has been especially valuable in measuring changes in specialized crops that are grown intensively in rather limited areas. In such cases it often is hard to get adequate infor-

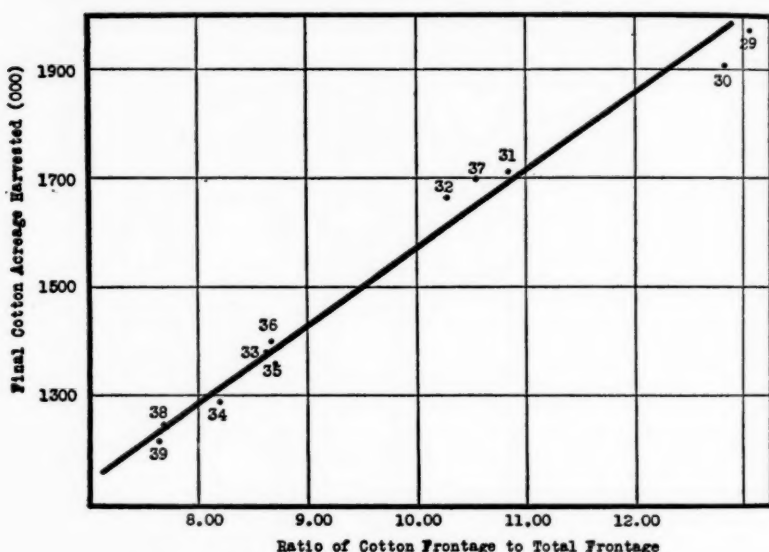


CHART I. SOUTH CAROLINA COTTON ACREAGE, 1929-1939.
Crop Meter Measurements vs. Final Cotton Acreage Harvested.

mation by mail, but intensive travel with a crop meter may tell the story quite clearly. An example of this is the case of commercial potatoes in Virginia. In an important potato area in that state we were unable to get enough reports by mail to measure fluctuations in acreage from year to year, and this caused considerable trouble. By measuring crop frontages, however, it has been possible to prepare estimates of acreage early in the season which were validated by production records after the crop was harvested and final yields had been estimated.

In most of the southern states crop meter measurements have given very valuable information regarding the acreage of cotton. Since cotton is an important cash crop, and under normal condi-

tions the price usually is influenced by the Government estimates, the judgment information supplied by cotton farmers by mail usually contains considerable bias. If this bias were constant from year to year it would not be especially troublesome, but it varies considerably as economic conditions change from season to season. Cotton is such an important cash crop that an unbiased check on it is particularly valuable. The correlation between frontage measure-

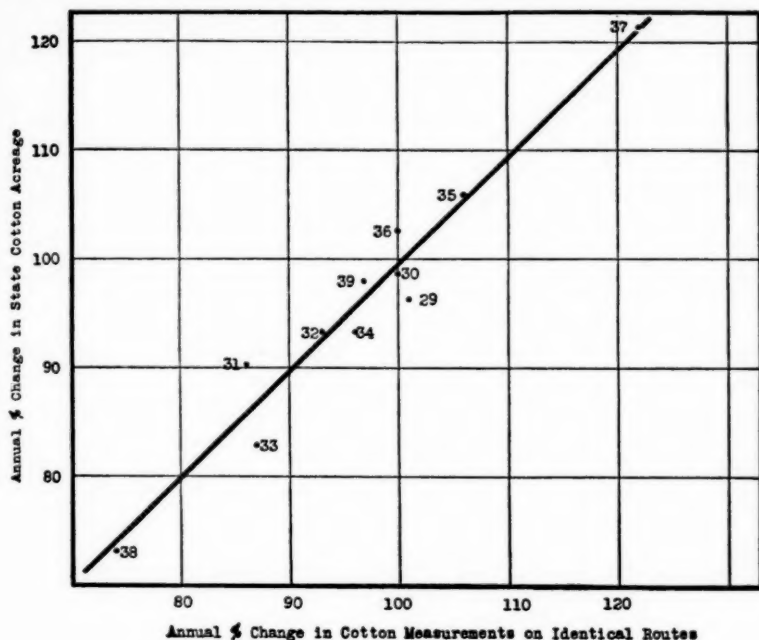


CHART II. SOUTH CAROLINA COTTON ACREAGE, 1929-1939.

Annual Changes in Crop Meter Measurements vs. Changes in Cotton Acreage.

ments and cotton acreages in South Carolina is illustrated in Charts I and II.

The crop meter does not adequately measure every crop, however, under all conditions. For that reason further research is being carried on to discover the possibilities of making a partial enumeration, or "sample census" each year. One phase of this study has already been described in a paper presented in the *JOURNAL OF FARM ECONOMICS* in February, 1940.² The results of this study demonstrated some of the possibilities of the sample census ap-

² Arnold J. King and Glen D. Simpson, New developments in agricultural sampling, *JOURNAL FARM ECONOMICS*, 22 (1), February, 1940.

proach, and provided a basis for making practical trials of the method. In one sense this is not a strictly "objective" method, in that the enumerator records what the farmers tell him, rather than actually measuring every field and counting every other item enumerated. Our definition of "objective," however, is not too precise, so I shall describe briefly what is being done along this line.

The WPA provided the opportunity to begin actual sample census work in two states, Iowa and Arkansas, and it has been in progress there since April, 1940. The work is still on an experimental basis, but it may be expanded to other states. The project is established primarily to obtain information regarding employment on farms, but supplementary information about crop acreages is also being collected.

The procedure has been first to make a strictly random selection of about 10 areas in each county of the state, each area covering approximately one square mile. Since the total area of the state is known, it is easy to compute the proportion of the total that is included in the sample areas.

Enumerators are then sent to each of the selected areas, and a complete enumeration of the crop acreages is made for each area. The totals of all areas can then be expanded quite readily into a State estimate by applying the known proportion of the state that is included in the sample. This method is not dependent upon the Federal Census for a base, but it is still too early to report on the results. It is to be expected that the method will reflect some items more accurately than others, but it will require more experience to determine precisely which items can be estimated in this manner with reasonable accuracy.

Estimating Crop Yields

The problem of estimating average yields per acre is totally different from estimating acreages. It involves forecasting the yield several months in advance of harvest, as well as estimating the final average yield after harvest. The factors which determine yields of crops are not all known. Furthermore, no two crops respond exactly alike to the same environmental influences. In fact, there are so many different influences affecting crop yields that it might seem hopeless even to try to get objective measures of them.

Only one approach has so far given much promise in obtaining objective measurements as a basis for estimating yields. This is to discover some particular characteristics of a plant which are correlated with yields, and then take sample measurements of those characteristics. For instance, with cotton the final yield of lint per acre is determined by only two factors: First, the number of bolls per acre, and second, the average weight of lint per boll. If we had

these two figures we could simply multiply them together and the product would be the yield.

Of course, it is not practicable to count all the bolls of cotton on an acre, and if we did we would have the count for only that acre; but the idea is one that is adapted to sampling technique. Since

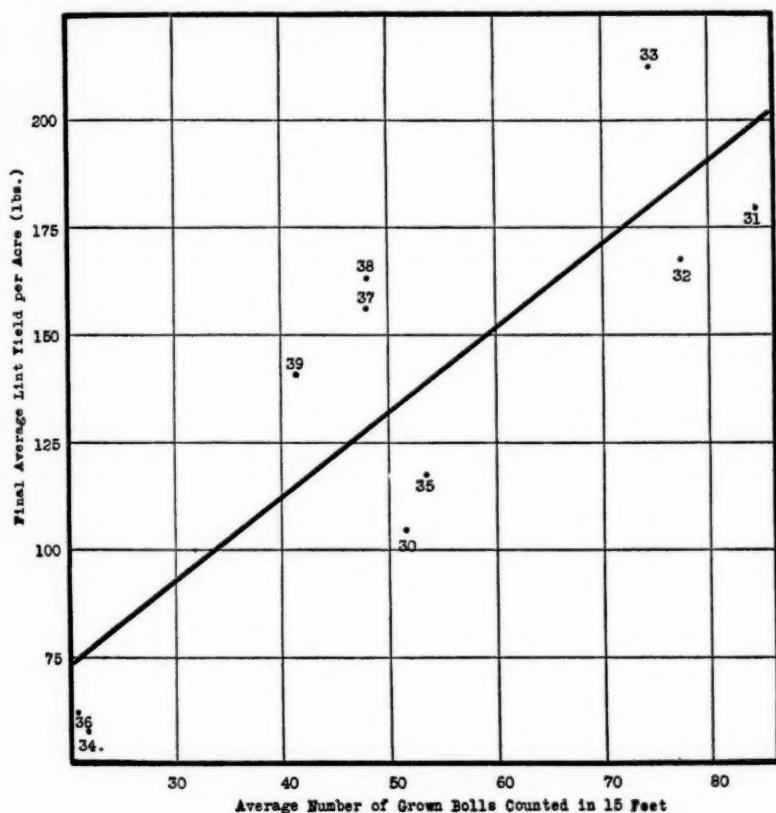


CHART III. OKLAHOMA COTTON YIELDS PER ACRE, 1930-1939.
Average Number of Bolls in 15 Feet vs. State Average Yield per Acre.

1928 we have made counts each year of the number of bolls of cotton on 15-foot strips of row, selected at random in different cotton fields along regular routes throughout the Southern States. About 1,000 of these counts have been made each year, during August and September. The individual counts have been combined by states, and the averages correlated with final estimated average state yields of lint. The results of this work are showing some

promise, but we are still working to improve the technique of doing the field work, and thus to increase the precision of the results.

Chart III illustrates the correlation between these boll counts and final yields in Oklahoma during the last 10 years. It is apparent that the precision of this relationship is not all that might be desired. Whether this fault is due to an insufficient number of counts, or to some other factors which need to be considered, we are not yet able to determine.

Perhaps higher precision could be obtained by taking measurements of the sizes of bolls, as well as the number of bolls, and using both these factors in correlation with yields. The average size of bolls varies considerably from year to year, but it is very difficult to obtain satisfactory measurements of these variations. An instrument was devised some years ago to measure the volume of green bolls, and such measurements were taken for several years at the same time that the bolls were counted. The problem of measuring boll size, however, is complicated by the long fruiting period of the cotton plant, which extends over several weeks. To obtain adequate information on boll size it is necessary to make successive measurements through the season, because early bolls may be larger than average, and late bolls smaller, or vice versa. It has not been practicable to make such successive boll measurements over wide areas.

Considerable inter-correlation exists between numbers of bolls and size of bolls, in their relation to final yields, because the same influences which cause the plants to set large numbers of bolls also cause these bolls to develop to large size. When conditions are adverse the bolls not only are restricted in size, but also the plant sheds some of them that otherwise would be retained. For this reason, as well as because of the practical difficulty of taking enough successive measurements, we have discontinued taking measurements of boll size. They may be resumed if more facilities become available for doing the work.

In addition to objective counts with cotton, similar work is being carried on with corn and wheat in some of the Northern States. With both these crops samples are measured at random, from random fields along a regular route, and these measurements are correlated with average yields for the areas to provide a basis for estimates. The scope of the present paper is limited to "Southern Crops," so this is not the place to discuss the corn and wheat work in detail, but the results have been quite promising and experiments are being continued to improve the technique and develop the method.

Two obstacles have stood in the way of perfecting objective

sampling methods for estimating or forecasting crop yields. One is that very little information is available concerning the factors of plant growth that are correlated with yields, and which are readily subject to definite measurement. Considerable experimenting has been required to discover which measurements of the plants should be taken, and this experimental work is still in progress. The other obstacle has been that the available funds have nearly all been required to carry on the established procedure of collecting judgment reports by mail, and there has been little money for the experimental work necessary to devise and perfect objective sampling methods.

Conclusion

In conclusion it might be said that while judgment inquiries collected by mail have some definite disadvantages, it has not yet been possible to devise objective sampling methods to provide a satisfactory basis for estimating crops. Considerable progress has been made in obtaining objective measurements of crop acreages by the use of crop meters, but this device does not adequately measure all crops under all conditions. Experiments are now being conducted in Iowa and Arkansas to discover the possibilities of a sample census, for collecting agricultural information. The results of these experiments are not yet available, but preliminary studies indicate that the method has definite possibilities.

The development of objective sampling methods has been retarded not only by the difficulties of the problems involved, but also by lack of funds for the research work necessary to solve these problems. Definite progress is being made, however, and this progress will continue as rapidly as conditions may permit.

PROBLEMS IN ESTIMATING TEXAS CITRUS FRUIT

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Grapefruit is the principal citrus crop in Texas, and problems in forecasting production are practically the same for grapefruit and oranges. This paper, therefore, will relate to grapefruit specifically rather than to citrus as a whole. Also, as the more perplexing problems are encountered in forecasting production, rather than in estimating final production, "forecasting" might be substituted appropriately in the title for "estimating." The final estimates are based largely upon tangible and accessible data, such as complete records of shipments and quantities processed.

Methods used in preparing production forecasts of field crops involve the solution of the two major problems of determining the acreage of the crop and deriving significant pre-harvest indications of probable yield per acre. Of the two phases, the problem of estimating acreage each year is the more difficult one. The problem of estimating production of tree fruits, however, is somewhat different. Changes in bearing acreage usually occur more gradually, and, because the trees are long-lived, the changes are more predictable on the basis of enumerations and sample surveys made at two to five year intervals.

The obtaining of dependable indications from yield per acre or yield per tree inquiries for use in forecasting is much more difficult for tree fruits than it is for annual field crops, for a number of reasons. Differences in ages of trees, number per acre, and potential capacity among different orchards in a locality make it difficult for crop reporters to estimate on the basis of yield per tree without spending more time than they, as voluntary reporters, are willing to give. Even if such reports could be obtained, the extreme variation between locality reports would involve serious difficulties in sampling and in interpretation.

Because of these differences in the basic problems, the Department has found it necessary to develop different approaches in forecasting and estimating most fruit crops. Before discussing grapefruit forecasting problems in particular, the methods used in forecasting other fruits will be mentioned briefly.

The most useful inquiry, from the standpoint of ease in estimating by the farmer, and in reflecting variations in seasonal factors, has been the simple request to report on "condition in per cent of a full crop." In addition to the advantage of being relatively easy for the farmer to estimate, this inquiry removes the extreme variation

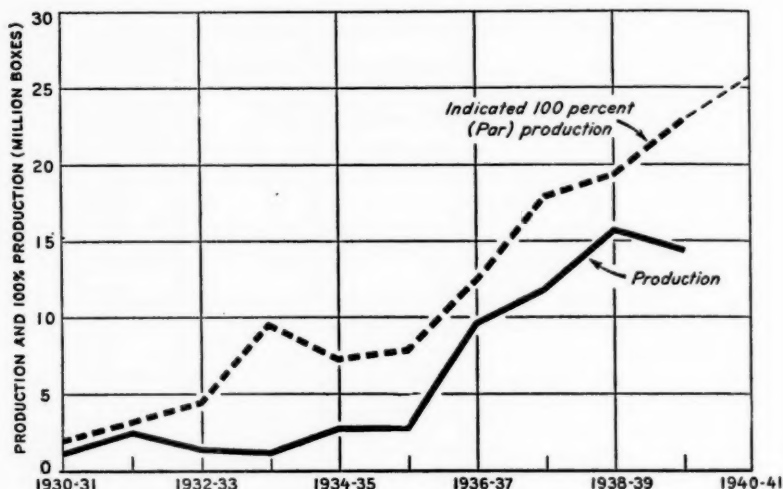
between reports on individual orchards and localities that are vastly different in per-acre yields because of differences in age of trees, number of trees per acre, cultural practices, etc., but are producing about the same per cent of their respective "full crops."

The State average percentages of a full crop are converted into quantitative production forecasts on the basis of the relationship between the reported figures and final production in previous years. The method most generally used, particularly for deciduous fruits where the relationship is a straight proportion line, is to apply the State percentage to a theoretical 100 per cent or par crop. The 100 per cent crop in turn is a projection of computed 100 per cent equivalents in preceding years, the figure for each year being the production raised to a 100 per cent basis by dividing by the reported per cent of a full crop in that year. The direct correlation of reported condition to production is used in addition to the par approach in some cases as a supplemental indication of production.

The foregoing general statement regarding the methods used in the Department in forecasting production of tree fruits is presented briefly without mention of specific problems and other supplemental approaches, to provide a background for the discussion of the problems encountered in forecasting grapefruit production. The methods were being used in estimating other fruits at the time grapefruit estimates were inaugurated in the State, and, naturally, these methods were adopted as the most logical approach to the new problem.

The production of grapefruit in significant commercial quantities is a recent development in Texas. From a maximum total of about two and three quarter million boxes during the period from 1930 to 1935, production jumped in 1936 to nine and a quarter million and in 1938 to almost sixteen million boxes. This precipitous rise in production in 1936 and subsequent years was due in part to recovery from 1933 hurricane damage to trees. Of more significance, however, was the increase in number of bearing trees and the increased potential production per tree as the trees became older. Although actual production from 1932 through 1935 was being limited by weather factors, increased tree numbers and increased bearing surface per tree were building up potential production each year, to break out in almost unpredictable volume in the comparatively favorable years from 1936 to date. (Table 1—figure 1, prod., and 100 per cent prod. by years.) The 100 per cent equivalent, or par production figure for each year (computed by dividing the reported percentage of a full crop into production $\times 100$), as shown in table 1, provides an indication of the upward trend in potential production during the period. The sudden and rapid rise in production

introduced a real problem in the preparation of current forecasts, at a time when historic data bearing on the problem were very limited. With 79 per cent of the trees not over 13-years-old and 39 per cent not over 10 years, an upward trend in production may be expected to continue for several years. About two-thirds of the trees are from 9- to 13-years-old, inclusive.



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FIG. 1. TEXAS GRAPEFRUIT PRODUCTION AND INDICATED 100 PER CENT PRODUCTION.

Indicated 100 per cent (par) production computed from December 1 reported percentage of full crop and actual production. Table 1.

The crop correspondents in reporting on the per cent of a full crop in their locality obviously have a full crop concept for trees of the age for which they are reporting. The reported condition or per cent of a full crop does not reflect changes in tree numbers and increased bearing surface of trees. The reporters apparently are estimating the relative set of fruit, the size of fruit and the condition of trees. This is what our experience in working with other crops would lead us to expect. The major problem, therefore, in interpreting reported condition in terms of probable production is one of measuring and projecting the trend in potential production, to obtain 100 per cent equivalent or par production to which the reported figure may be applied (table 1). If the direct approach of correlating reported condition with production is used with trend

as a second factor, the same problem of projecting trend is encountered (figure 4).

The marked trend in potential (100 per cent) production in the years of record has been due to two factors—increase in number of bearing trees and increase in bearing surface per tree. The greatest difficulty in projecting the par production curve and in forecasting production is in knowing when the precipitous climb will begin to level off, as one or both of the factors of increase approach a point of stability. It is certain that such a rate of increase can not con-

TABLE 1. TEXAS GRAPEFRUIT: PRODUCTION, DECEMBER 1 REPORTED PERCENTAGE OF FULL CROP AND INDICATED 100 PER CENT (PAR) PRODUCTION

Season	Harvested production	December 1 reported percentage of full crop	100 per cent equivalent production indicated by December 1 reported condition
	<i>1,000 boxes</i>	<i>percentage</i>	<i>1,000 boxes</i>
1930-31	1,135	58	1,957
1931-32	2,480	79	3,139
1932-33	1,385	31	4,468
1933-34 ^a	1,140	12	9,500
1934-35	2,760	38	7,263
1935-36	2,762	35	7,891
1936-37	9,630	78	12,346
1937-38	11,800	66	17,879
1938-39	15,670	81	19,346
1939-40 ^b	14,200	63	22,540

^a Reported percentage of full crop and resulting 100 per cent equivalents are not strictly comparable with other years because of severe hurricane damage in September, 1933.

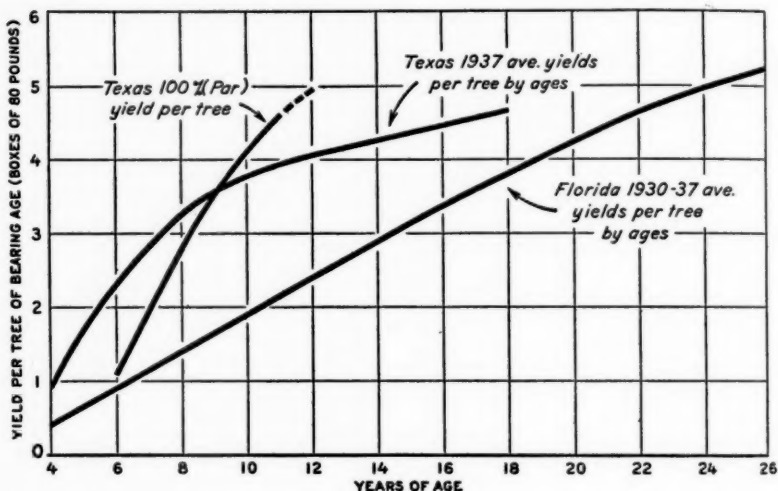
^b Some loss from freeze in January, 1940 not included in estimated production.

tinue indefinitely. At this point, in attempting to develop a measure of the rate of growth which might be projected beyond the years on record, it was necessary to depart to some extent from the methods which had been found satisfactory in estimating more stable and generally grown fruit crops.

Satisfactory figures on tree numbers, by ages, are made available at intervals in connection with the fruit fly regulatory work of the Department. With these data providing dependable indications of the number of bearing trees each year, this factor in the trend of production could be removed from the problem, leaving the rate of growth in potential production per tree as the major problem on which to concentrate.

The grapefruit industry is relatively young in Texas and accurate individual grove data on the production per tree of different ages

are exceptional. The possibilities of obtaining such data on trees above 15 years of age are particularly limited. Such data are available for Florida trees, but a comparison of the Florida growth curve constructed from such data with the growth curve indicated by 100 per cent equivalent yields per tree in Texas for the years to date, indicates rather clearly that the rate of growth in Texas is quite different from the rate of growth in Florida (figure 2). This



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FIG. 2. GRAPEFRUIT: INDICATED TEXAS AND FLORIDA GROWTH CURVES IN PRODUCTION PER TREE.

Texas growth curve is from unpublished sample survey data of 1937 production for 320,000 trees. Table 4.

Florida growth curve is from data on yield harvested per tree, marketing years 1930-31 to 1937-38. Miscellaneous Publication 28, Florida Extension Service, November 1939. Table 4.

Texas 100% par yields per tree are computed from December 1 reported percentage of a full crop and actual yields per tree. Table 2.

Data for the two States are not comparable as to quantitative yields, and are used only to indicate type of "growth curve."

fact also suggests the probability that Texas trees may reach maximum bearing capacity and a flattening out of the growth curve at different ages than do Florida trees.

In order to get more direct indications of what might be expected of Texas trees as they increase in age, a survey was made in 1938 in which about 600 individual grove records of tree numbers and 1937 production by ages were obtained. From these data, yield per tree averages for each age were computed and an indicated growth

curve plotted (figure 2). As compared with the Florida growth curve, the indications from this survey are that Texas trees increase much more rapidly in bearing capacity up to about 10 years

TABLE 2. TEXAS GRAPEFRUIT: ESTIMATED NUMBER TREES 4-YEARS-OLD AND OVER, AVERAGE AGE OF TREES, FINAL PRODUCTION PER TREE, AND 100 PER CENT EQUIVALENT PRODUCTION PER TREE

Season	Estimated number trees 4 years+	Average age of trees	Final production per tree	100 per cent equivalent boxes per tree, basis December 1 condition
	<i>1,000 trees</i>	<i>Years</i>	<i>Boxes</i>	
1930-31	1,458	5.7	.778	1.34
1931-32	2,238	5.8	1.108	1.40
1932-33	3,395	5.8	.408	1.32
1933-34 ^a	4,110	6.3	.277	2.31
1934-35	4,553	6.8	.606	1.60
1935-36	4,626	7.1	.597	1.71
1936-37	4,914	7.9	1.96	2.51
1937-38	5,088	8.7	2.32	3.51
1938-39	5,127	9.7	3.06	3.78
1939-40 ^b	5,182	10.6	2.72	4.32
1940-41	5,227	11.5	—	—

^a Reported percentage of full crop and resulting 100 per cent equivalents are not strictly comparable with other years because of severe hurricane damage in September, 1933.

^b Some loss from freeze in January, 1940, not included in estimated production.

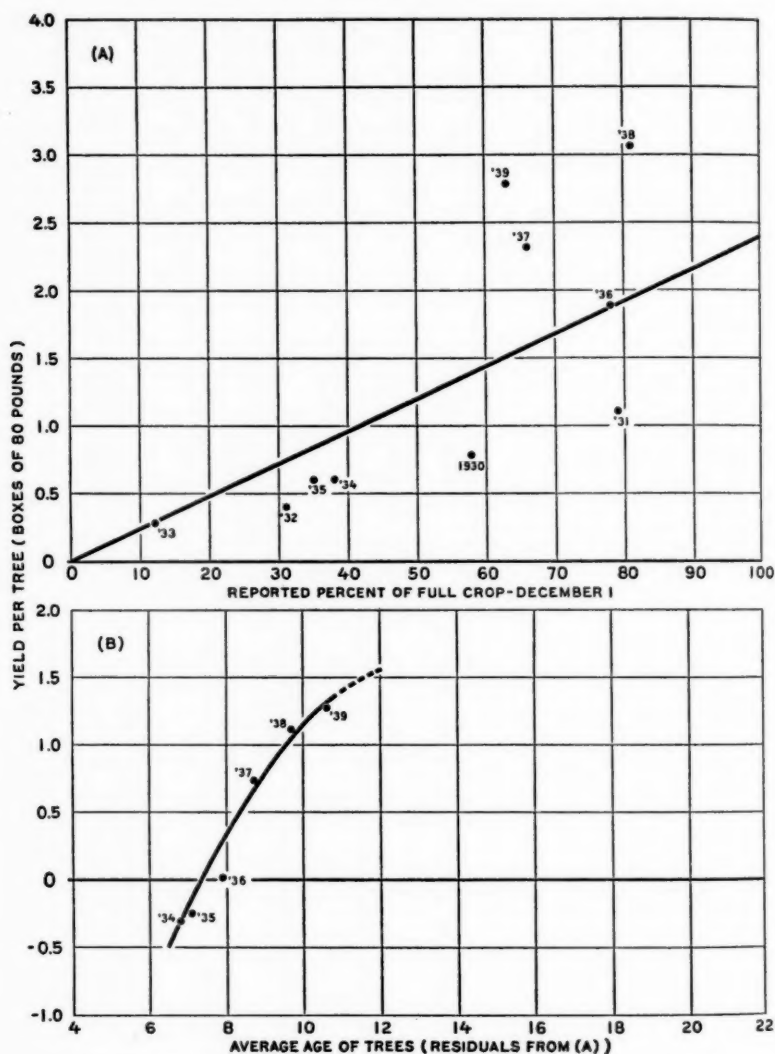
of age. Beyond that age a more moderate increase in yields is indicated for Texas, whereas the rate of increase in Florida is maintained for possibly eight or ten years longer. For the earlier ages the curve from sample data is substantiated by the yield per tree curve de-

TABLE 3. TEXAS GRAPEFRUIT: ESTIMATED NUMBERS OF BEARING TREES 4-YEARS-OLD AND OVER FOR 1940-41 SEASON, BY AGES

Age (Years)	No. trees (000)	Age (Years)	No. trees (000)	Age (Years)	No. trees (000)
4	47	9	798	14	341
5	54	10	617	15	230
6	39	11	582	16	183
7	175	12	893	17	107
8	288	13	618	18 plus	255

rived from actual State production and tree numbers, but the indication of a more moderate rate of increase after 10 years has not been substantiated by actual State yields through 1939.

The indicated growth curve from the survey data is used as a

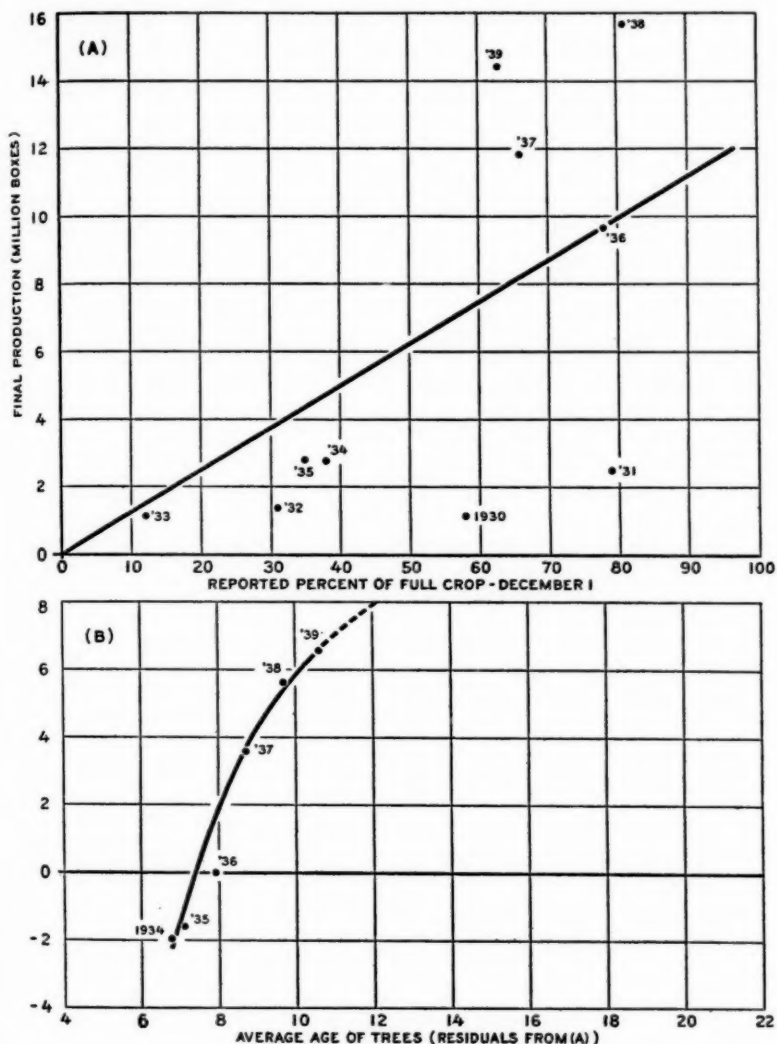


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FIG. 3. TEXAS GRAPEFRUIT: DECEMBER 1 REPORTED CONDITION VS. YIELD PER TREE AND AVERAGE AGE OF TREES.

guide in projecting the 100 per cent equivalent yield per tree curve (figure 2), consideration being given to the average age at which the rate of increase diminishes and the extent of the decline. To the projected 100 per cent equivalent yield per tree for the current year



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FIG. 4. TEXAS GRAPEFRUIT: DECEMBER 1 REPORTED CONDITION VS. FINAL PRODUCTION AND AVERAGE AGE OF TREES.

is applied the reported per cent of a full crop to get an indication of the yield per tree, which when multiplied by the number of trees, gives an indication of probable total production for the current year. The survey data are used in the same way in projecting trend

as a second factor in direct correlation of reported percentages with final yields per tree (figure 3), and with final total production (figure 4).

The survey data and other information on Texas grapefruit have limitations which only time and additional experience can elimi-

TABLE 4. GRAPEFRUIT: PRODUCTION PER TREE BY AGES AND AGE GROUPS, TEXAS AND FLORIDA

Age of trees	Production per tree—Sample data	
	Texas ^a	Florida ^b
<i>Years</i>	<i>Boxes</i>	<i>Boxes</i>
3	.72	
4	.61	
5	1.10	
6	2.11	(5 to 8 yrs.) 1.1
7	2.84	
8	3.42	1.7
9	3.68	1.7
10	3.55	1.8
11	4.10	2.2
12	4.60	2.6
13	3.46	2.8
14	4.00	2.6
15	3.88	3.2
15 to 18	4.88	—
15 to 23	4.82	—
19 to 23	4.38	—
16	—	3.8
17	—	3.7
18	—	3.7
19	—	3.5
20	—	3.5
21	—	4.6
22	—	4.8
23	—	5.5
24	—	4.8
25 to 28	—	5.8
28 and over	—	5.6

^a Unpublished sample survey data of 1937 production for 320,100 trees, by A.M.S.

^b Yield harvested per tree, marketing years 1930-31 to 1937-38. From Miscellaneous Publication 28, Florida Extension Service, November 1939.

Data for the two states are not comparable as to quantitative yields. Used only to indicate type of "growth curve."

nate. For instance, the series of reported data and production figures is very short for either simple or multiple correlation studies. Data on trees 18 years old and older in commercial orchards are limited. Also it is possible that more liberal spacing of trees in younger groves, more suitable locations, more general use of ferti-

lizers, and improved cultural practices may result in an extension of the period of rapid increase beyond the age where the present older trees are reaching maximum production. The steep slope of the par yield per tree curve from 1937 to 1939, at ages where the growth curve indicates that it should begin flattening out, suggests that these practices may be factors at this time. There are also possibilities that the increase in bearing surface per tree may be interrupted by freeze and other weather damage to trees. The effect of a long period of low prices upon cultural practices and general care of groves is another factor of uncertainty. More conclusive data on production per tree of different ages are needed.

Supplemental inquiries, asking for quantitative individual grove estimates for the current and previous years and judgment estimates for the locality in per cent of the previous year are used and may prove helpful after longer series of data are accumulated to provide a measure of the relationship between sample data and the final outturn. Under conditions of rapidly expanding production these individual grove and locality estimates have been very conservative. Experimental work in securing and using objective data, such as "hoop counts," measurements of tree spread, etc., would be desirable. Such work to be effective, however, must be conducted on a more intensive scale than present facilities will permit.

The problem of estimating citrus production in Texas is not static in any sense; each season presents a new problem, and basic data and methods must be constantly modified to keep abreast of the changing situation.

HIGHLIGHTS OF THE 1940 CENSUS

Z. R. PETTET

Bureau of the Census

The 1940 Census differs from those in the past in one very important respect. For the first time in history we have statistics on population, housing, agriculture, manufacturing, business, mines and quarries, irrigation, and drainage, all taken in the same year. This will give us a new universal basing point and will obviate the difficulties, which have always occurred in the past, in tying up statistics of different years. This Census marks one hundred years of Federal enumeration of agriculture. In that one hundred years the census inquiries have increased from a few questions, relating to production, to more than 200 embracing the principal fields of agriculture, such as uses of land, principal crops, classes of livestock, and farm expenditures and facilities.

Looking at the Census from the internal or office standpoint, the schedule is of vital importance. Every factor relating to it, the subject matter, the way the questions are asked, the arrangement, and even the display of type, has a distinctive bearing upon the completeness and accuracy of the statistics obtained. In listing the high points to be covered in the discussion of the Census, the schedule must come first. Most of you are familiar with it.

In line with past experience, the schedule should be actually tried in the field to develop inaccuracies and errors. With a few exceptions this was done with all of the questions on the 1940 schedule. The questions asked in the trial, which were included in the final schedule, were found satisfactory. Those which were added after the trial census have thus far been found faulty.

This indicates that one of the outstanding features of the 1940 Census was the trial of the schedule made in 1938 in cooperation with the U. S. Department of Agriculture's Crop and Livestock Division.

The most important improvement to be found in the 1940 Farm Census Schedule is the regionalization, or adaptation, of the schedule to crops grown in various regions. In the trial census just mentioned a sample regionalization was found to be feasible. This regionalization was carried further until we now have nine areas, based primarily upon the nature of the crops grown, but also giving due attention to the changes in unit to adapt it better to the local crop measure. This latter point is the principal reason for making a special separation of California and Florida. Most California crops are sold by the farmers by weight rather than by measure.

Actual field work in connection with the Census followed the

traditional pattern. Several very interesting and, we believe, very important innovations were adopted. Most important of these was the campaign to familiarize the farmers with the Census and the Census schedule. There were 2,300,000 sample schedules sent out in this campaign, most of them directly to farmers. This campaign was made possible through the active cooperation of numerous agencies. First among these, perhaps, was the United States Extension Service, particularly those interested in farm record keeping. In cooperation with Mr. Galloway, of the Extension Service, Mr. Kadderly, Mr. Baker, and the Farm and Home Hour, several network broadcasts were given, which resulted in many thousands of requests for schedules. In addition, more than 500 individual radio stations used special programs requesting farmers to keep records and to write for copies of the schedule.

While there may be a difference of opinion as to the actual results of this campaign, the fact that we were able to edit the schedules in about one-half of the time formerly required for 200 questions on the schedule, indicates that the material is above the grade of that of previous censuses, except perhaps that of the 1935 Census. It must be said further that continuous work must be done by all agricultural agencies to improve farm records and bookkeeping before the statistics can be materially improved in this regard.

The use of films in training the enumerators marks another advance in field training. It is probable that our crude initial efforts can be greatly improved, and that both the training and the personnel in the field can be improved in the future.

Further voluntary experiments were made in connection with the location of farms, which were intended to help in obtaining a complete enumeration. Here, also, lies an opportunity for improving the completeness and usefulness of the census.

We believe improvements in methods and equipment in the office will be of interest to many of you, as we found that our publication, "Technique of Tabulation," was the most popular, with only one exception, of all of our agricultural publications.

In this connection may be mentioned the training of 1300 clerks by visual means and phonographic records. Films and slides were used to instruct the editors. About a clerk week was devoted to this training. As nearly one-half of our clerks were college students drawn principally from the Junior Scientific Aide and Junior Professional Assistant classifications, this plan appeared to be quite successful. Comparisons of intelligence tests, with class tests and the final editing examination, gave us further help in developing the personnel, particularly those in charge of the sections.

Two noteworthy improvements in the mechanics of tabulation

were made. First of these was the adoption of the 80-column card, which permits twice as much material to be tabulated from one card, and which allows much more cross tabulation and correlation than was previously possible. The other advance was the use of a machine called the "collator," which enables us to make a mechanical separation and listing of cards suspected of mechanical errors, either in punching or tabulation, or of errors in the basic entries on the schedule due to faulty enumeration, editing, etc. This machine will sort out suspected cards for 18 different items or errors. While it is too complicated to discuss in detail, it operates by wiring to show conflicting items or by sorting of cards upon the basis of a punched item recorded in the wrong field or digit column. Possibilities of this machine are just beginning to be understood. The Census Bureau is a pioneer in this field. Daily improvement is being made in the collator methods with which we started. It is hoped that we will be able to repeat our booklet on "Technique of Tabulation," which will discuss this process, the cards, and machine sheets used in our processes.

In the field of publication, an experiment, new to the Census Division of Agriculture, has been tried, that is, the printing of the publications by the offset process after preparing the copy on a vari-type machine. It is hoped this will speed the publication of results.

To many of you, the title of this talk suggests the great and important changes which have occurred in this country within the last five years. As the Census requires three years to complete, and as only a few States are now finished, it is not possible to summarize these results; however, some of the outstanding indications may be mentioned: Among these, farm mechanization appears to be the most important since it affects not only the farm crops and classes of livestock but the whole farm economy, farm living, farm labor, and even the general price situation. The surpluses of agricultural products and of labor released from farm work have become major problems of our national economy at a time when we are faced with the necessity of finding a more or less self-contained operating basis due to the war.

The data, tabulated thus far, show that there has been a continued decrease in the number of horses and mules. It is not possible as yet to measure this, or to indicate the decrease in the acreage grown primarily for horse feed, such as oats, or the acreage of pasture affected.

In the ten States now completed, a heavy decrease in the number of horses is reported. As tractor, truck, automobile, and road information appears in the second series of tabulations, which will not be ready for several months, little can be said about the compen-

sating increase in these machines. Other farm machinery is not specifically asked for by the Census, but comments furnished on the schedules indicate changes brought about by heavy machinery.

These comments and the information in the State tabulations which are completed, are sufficient to warrant us in believing that this mechanization will show (1) a relatively large proportion of large size farms with an offsetting decrease in the small units; (2) an increase in the operation of farms separated from the tract on which the farmers lived—this is particularly due to the use of rubber-tired equipment which makes it easy to farm fields at a distance; (3) the changes in the crops grown on the larger size units, with experimentation in new crops, such as flax; (4) the ability to farm either as owners or tenants, a large area of ground, resulting in farmers operating mortgaged farms where foreclosures have occurred; (5) changes in tenure due to the ability of farmers to operate entire farms and outlying tracts themselves, without finding it necessary to rent them to tenants; (6) enterprises now operated by the farmer and his family without the employment of extra help—this is, in many areas, because labor is unwilling to work under present conditions at farm wages; and (7) the release of farm labor through the ability of the farmer to handle his operations with tractors and heavy mechanical equipment.

There are other reasons why there has been a decrease in the number of farms, which may be determined from the Census data now available. One is the resumption of industrial occupations by those who took refuge on farms during the height of the depression. In some cases, this entailed moving back to the cities and towns; in other cases, the dropping of minor agricultural operations without change of residence as soon as the factories reopen. Another reason, already mentioned, was the great increase in foreclosures during the past decade.

The most striking of all, however, is the decrease in the number of farms in the drought area, extending from the Canadian line to as far south as the Texas Panhandle. Part of this decrease was reported in 1935, following the severe drought of 1934, but an additional impetus was given by the drought of 1936 and other unfavorable years. Many farmers who withstood the first drought were finally forced to abandon their operations. Changes in the type from grain farming to ranching also were indicated in that area, or the change from cultivated crops to grass. The extension of cities has resulted in farms being cut up for subdivisions. On the other hand, in some areas, there appears to have been an increase in part-time farming by persons moving from the cities and obtaining part of their living from minor agricultural operations. This

trend is evident only through increases in the number of farms in such areas, as the part-time data appear in the second series tabulations.

The balance between these two conflicting factors cannot yet be determined from the Census figures. From the States which have been tabulated, it appears there is a decrease in the small and the part-time farms with minor agricultural operations. As the raising of chickens, the keeping of milk cows, and the planting of family gardens are the principal activities on these small tracts, a marked decrease in the number of cows, chickens, and family gardens is to be expected. This is borne out by a consistent decrease in the number of cows milked in 1939 and the number of chickens on hand April 1, 1940. Because of the differences in the number of chickens at various periods of the year, this is not entirely conclusive. Winter losses and culling of poorer fowl prior to the active breeding season might account for a considerable part of the difference.

The effect of the various farm programs, particularly upon soil-improving crops, seems to be one of the other significant points brought out by the Census. The extension in the area of two legumes, lespedeza and soybeans, may be partly attributed to this as well as to other causes. The range of both of these crops has been extended northward and the commercial production of soybeans for grain has become a major item. The extension of flax, due to other causes, has been mentioned. Flax is reported in southern California, Texas, and in many other States where it is a newcomer. New varieties are being tried in the southern territory. Experimentation with other crops, particularly minor crops, has been carried on over most of the United States.

While the growing of citrus fruits and vegetables has increased, the extent will not be known until after the tabulation of the second series of reports which cover these items.

With the advent of new crops and the extension of old ones into new territory, we have other developments which will have a far-reaching effect on our economy. These are already indicated in the Census figures showing the wide use of hybrid corn and the consequent high yields. The corn yields are very often more than double the yields previously reported in many areas, and will give us a production in excess of the old averages in a large part of the Corn Belt.

Other highlights of the Census which are in prospect will show the increase in rural electrification and farm facilities, changes in the average age of farmers and the period of occupancy, labor, expenditure for labor, and farm mortgages. The second series of tabulations, which carries these items, is expected to begin in April about the time the first series of tabulations is completed.

Anyone interested in any of the farm census figures may be listed to receive the State releases, which contain the principal items. The county information will appear in three series of publications. These will be for sale by the Superintendent of Documents, Government Printing Office, Washington, D. C. The usual cost is about ten cents a bulletin, except for the larger States. As the publications are issued you will perhaps be able to find many things of greater importance than those which have been mentioned, and to study in detail many of the problems upon which the Census furnishes basic information.

In addition to the published statistics of the Bureau you may have special tabulations made by payment of the actual cost. These additional tabulations cover a very wide range of related subjects. A study of our cards or plan of tabulation will indicate those items which may be handled mechanically from the cards as originally punched. If it is desired to have other items which appear on the schedule tabulated together, it is possible to do so by transferring this information to a third card and breaking down the groups or related items which are thought to be significant.

The use of the "collator" previously mentioned makes possible new types of study, particularly where it is desired to accumulate evidence regarding the relationship of various factors.

The schedule itself provides for study upon the soil-improving crops, the succession and interplanted crops, crop failure, and summer fallow. This information must be obtained by special study and is not included in the regular tabulations. In addition to this the schedule provides information which through special study will throw light upon incorporated farms, types of tobacco, various mixtures of grain grown together, various types of mint grown for oil, mushrooms, seeds, plants, and bulbs grown in the open. Research upon the items mentioned must be carried on from the schedule, as no provision has been made for punching that detailed information separately on the cards.

In this connection, students and research agencies are invited to make the fullest possible use of Census facilities for special studies of numerous kinds. There is scarcely a time that a number of these are not under way. We want you to think of the Census as a great reservoir of information and as one of the country's leading service agencies.

DISCUSSION BY TRIMBLE R. HEDGES

University of Arkansas

The writer has given primary consideration to a sample 1940 Farm and Ranch schedule for Section 6, and the printed county tables from the 1930 and 1935 agricultural censuses. The following comments are presented to

focus attention upon certain problems in the use of census data for the plantation situation common to the Arkansas, Louisiana, and Mississippi Delta Type areas.

These problems may be classified into two main groups: (1) Those growing out of inadequacies in the organization and use of the enumeration schedule, and (2) those growing out of procedures used in classifying, summarizing and presenting the data. The first group of problems may be illustrated by considering how the 1940 sample Farm and Ranch schedule for Region 6 would apply to an actual plantation. For this purpose the writer has chosen a typical plantation set-up in the Arkansas Delta Type Area including 7,800 acres of land in 1939. Of this acreage, 3,208 acres were in cultivated crops, 1,331 acres being in cotton. The operator farmed 638 acres as day-crop cotton, employing 8 wage families full time, and 25 to 30 sharecropper families part time. There were 12 share renters, each farming an average of slightly over 12 acres of cotton or a total of 150 acres. The remaining 553 acres were operated by 48 sharecropper families, each family with an average of 11 acres of cotton.

Under the census rules, the plantation operator's day-crop acreage, cotton and other crops, would be listed as one farm. So also would each of the tracts farmed by the 12 share renter families and the 48 sharecropper families. Since the 8 wage families each had charge of less than 3 acres, and produced agricultural products valued at less than \$250, these would not be enumerated as farms. Enumeration of each of these subparcels of one operating unit as a separate farm leads to inaccuracy and distortion of the true situation.

1. It attempts to separate integral parts of a business organization which it would be extremely difficult for even a trained analyst to segregate. Parenthetically, the enumerator seldom is a trained analyst. Such items as land valuation, mortgage indebtedness, machinery values, farm expenditures, and livestock numbers and valuations cannot practically be classified as between the day-crop acreage and the tenant acreage.
2. It does not secure adequate data in Section II to provide a clear understanding of the method of operation for share renters and sharecroppers. There is no provision for "through-and-through" operation by share renters or sharecroppers. It has become a common practice during recent years to make no definite acreage assignment to the individual tenant. Work is carried out by groups of workers on blocks of cotton or other crops, regardless of which tenant the crop "belongs to." There is inadequate provision for showing clearly work done by the operator with a tractor or other equipment, cost of which is assessed against the tenant. Section VII does not provide a means of identifying the nominal sharecropper who is given a minimum acreage to hold him on the plantation, but who is considered by himself and the operator as a part of the day-crop labor force.
3. It fails to provide an understanding of the farm business as a complete operating unit. The plantation operator and all his labor, of

whatever tenure classification, think of the plantation as a whole as the operating unit. Considerable of the production process and often all the buying and selling is for the plantation as a whole.

The second group of problems in using census data for plantations is illustrated by the printed county tables for the 1930 and 1935 censuses of agriculture. The 1930 agricultural report includes a separate supplemental tabulation showing the per farm value of land and buildings, implements and machinery, according to tenure, a separate classification being given sharecroppers. There is a supplemental county table for the 1935 Agricultural Census showing the number of operators, total land, cropland, and land value according to tenure, including sharecroppers. There is no separation according to tenure in the presentation of other agricultural data for either census. Such a grouping of data can be justified only on the basis of reasonable homogeneity. Specifically, it assumes no important difference in farms operated on a day-crop basis by plantation operators, farms operated by share renters, or farms operated by sharecroppers. That this assumption is invalid is shown by the cotton acreages according to tenure for the above mentioned Pulaski County plantation. A part of the criticism due the method of classifying, summarizing and presenting the data grows out of the inadequacy of the schedule. That is, no amount of manipulation of the data will compensate for failure of the method of collecting information to provide essential facts. However, it would appear that the practice already adopted in classifying total cropland and value of labor and improvements according to tenure well could be extended to include numbers and value of livestock and livestock products, work off farm, farm labor, acreage and production of specific crops, and farm expenditures. Such additional information would be extremely useful and would constitute more valid statistics than those which include in the same averages such unlike data as those pertaining to the unit operated on a day-crop basis by the plantation operator and the small tracts farmed by plantation share renters or share croppers. It is likely that certain data, such as mortgage indebtedness, should be shown only according to total plantation operating units. Other information typified by crop acreage, and livestock numbers, should be shown in separate classification for plantation operators, share renters, and sharecroppers.

This discussion would not be complete without the inclusion of certain suggestions for improvement of present census methods. Those following have grown out of specific study in the plantation areas in Arkansas, and it is hoped that they will receive consideration. If not suitable for adoption in their present form, they will have served their purpose if they stimulate thought which will lead to revisions.

1. Census enumerators should be professionally competent to secure accurate information from plantation operators.
2. Separate schedules should be developed and used to secure data on the operating unit as a whole and the tenant sub-units. These schedules should be designed to reveal the tenure organization of the plantation.
3. The schedule used for enumerating tenants and share tenants on

plantations should provide information necessary to show the method of operation of such tenants.

4. The classification and presentation of census data for plantation type situations should reveal the essential agricultural data for operating units as a whole and also for the important tenure groups. This may involve two or more classifications of share groups according to whether they are the conventional type, or operate on a through-and-through basis.

DISCUSSION BY T. R. HAMILTON

Texas A. and M. College

As Mr. Childs has indicated the forecasting and estimating of citrus fruit production is much more difficult than with the older crops such as cotton and corn because of the rapid changes in number of trees and bearing surface. The prediction of tree crops must take into consideration the long time trends of trees of bearing age, but grapefruit production has expanded so rapidly in Texas that the use of trends in making a forecast must necessarily be only a rough estimate. On the other hand changes in bearing acreage occur gradually and are not subject to restrictions such as are found in annual crops. The fact that the grapefruit production in Texas on a commercial basis is such a recent development makes it impossible to get a sample adequate in size on which to draw conclusions of great accuracy. As time goes on and the industry becomes more stabilized the samples will increase in representativeness. Since however the forecasts of production are made only for the current season, a projection of the trend would not involve a great error as the trend for several years could be re-computed and brought up to date each season.

I would be inclined to discard the par method altogether and use instead the regression method. Although the par method is essentially a regression method in which a straight line relationship is assumed, such assumption is seldom justified and regression curves of the simple parabola or hyperbola types would be more logical. Such use of regression curves would have to be purely empirical and based on trial and error since no statistical tests by the use of standard errors would be valid because of the rapid changes in the industry and lack of homogeneity of the data.

It would be dangerous to conclude from table 2 that there is such a contrast between the growth curves of Florida and Texas grapefruit. While it has been established that Texas trees mature more rapidly and reach a greater production per tree at an earlier age than Florida trees, the table shows that at age 20 years Texas production per tree begins to level off whereas the Florida yields continue to show an increase for many years to come. Figures from other sources show that Texas yields do not begin to decline even for trees as old as 22 years. As Mr. Childs pointed out the difficulty in the comparison is the fact that the Florida figures are based on the period 1930-37 while the Texas figures are for 1937 only. This difficulty indicates the need for more frequent surveys in Texas

based on larger coverage in order to determine more accurately the relationship between age of trees and yield per tree. The survey made in 1937 may not be typical for earlier or later years, especially as to the effect of damage from insects and plant diseases. Cultural practices will probably improve more rapidly in the new producing areas. Such factors may cause considerable changes in the slopes of the growth curves. The tables show that the final yields per tree vary considerably from year to year even after an adjustment has been made for the differences in the ages of the tree. A scatter diagram of the age and yields obtained in the 1937 survey shows considerable scatter after the trees had passed the age of nine years, and two ages, 18 and 23 years, showed yields far out of line with the normal relationship as described by the fitted curve.

Forecasts of the yields per tree could be considerably improved by research on the relation of the yields to weather factors, cultural practices, and insect and plant damage. Although condition figures are influenced by those factors, they represent growers' opinions only as to the combined effect of numerous factors which are difficult to evaluate. A more precise measurement of the effect of each of the factors responsible for the final yields could be obtained by a study of past relationships. No doubt some work has already been done along this line, but much more needs to be done. This type of research would be particularly valuable in forecasting grapefruit production because the weather and cultural practices precede the final yield and hence they could be used for forecasting, and because there are a few definite factors which do have a decided influence on the final outcome of the crop. For example, the weather in the summer and fall will affect the next bloom which begins about February. The lack of rainfall is compensated for by irrigation, little fertilizer is used, and control of insects is more important than plant diseases. It therefore appears that only a few outstanding factors would account for the variation in yields.

It would be of interest to show a table and a scatter diagram indicating the forecasted production as obtained from condition figures on December 1 and age of trees and the final production. This relationship would give a practical test of the success in the past of the forecasts and it is this information which would be valuable to the dealers and growers. If an early forecast turns out to be in error, it has served a useful purpose because it has given the trade a figure to work on and has thereby served to stabilize the market. There is not a great difference between the November 1 and the December 1 condition figures, so that forecasts made as early as November 1 could be accurate enough to be of value. The forecasts should be stated in actual number of boxes and not in a condition figure which is confusing to the general public.

Mr. Childs might have expanded his remarks on what is meant by a "full crop." Does it mean the maximum yield possible on trees of a given bearing age or is it a kind of normal concept? Apparently it is a workable concept and gives good results, although it means different things to different reporters and does not appear to be a clear-cut idea. It is noted that the highest average condition reported since 1930-31 was 81 per cent of a full

crop. Apparently a full crop is considerably above a normal or average yield.

Since the par figures are based on final production and reported condition, the accuracy of the final estimates would affect the forecasts. The final harvested production figures can be tested by rather accurate data on the movement of fresh fruit from the Rio Grande Valley as obtained from the market news, inspection and fruit fly quarantine services. The actual total production is not nearly so certain as harvested production because some of the fruit may not be utilized. This discrepancy between actual and harvested production was particularly great in 1939-40 because of freeze damage. The actual production figures could be improved by a sample census taken annually but there are not sufficient funds available for this work at the present time.

On the whole Mr. Childs has done a good job in spite of the limitations of the data and the rapid changes in the grapefruit industry. One evidence of the accuracy of the forecasts and final production estimates is the high correlation between those figures and the price. Although this high relationship may be due in part to the fact that the trade accepts the government's figures as the correct size of the crop and the price is adjusted to this supply for a given demand, gross errors in estimating production would be corrected by supplies coming to the market and errors in price would accordingly be automatically corrected.

STATUS AND APPRAISAL OF RESEARCH IN FARM TENANCY

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The problems associated with farm tenancy have recently received a great deal of attention, as reflected in the nation-wide interest in the President's Committee on Farm Tenancy during the winter of 1936-37;¹ the Bankhead-Jones Tenant Act passed by Congress in the summer of 1937; the Farm Landlord and Tenant Relationship Act passed by the Oklahoma legislature in 1937, and repealed in 1939;² the appointment of state farm tenancy committees by the governors of Arkansas³ and Iowa;⁴ the request by the state legislature of South Carolina that the extension division at Clemson College study the farm tenancy situation and report to the legislature at the next session; and the bills passed by the state legislatures of Kentucky and North Carolina authorizing the governors to appoint a farm tenancy commission. The purpose of the state farm tenancy committees and commissions has been to investigate the problem of farm tenancy in the state with a view to encouraging home ownership, improving landlord-tenant relationships, and suggesting legislative requirements which will lead to the improvement of farm tenure conditions.

The interest in farm tenancy may also be seen in the bills introduced in different state legislatures. Iowa passed a law in 1939⁵ which modified the procedure for termination of agricultural leases so that the tenant can continue on the farm for the following crop year upon the terms and conditions of the original lease unless written notice of termination is given by either party not later than November 1.

A Farm Landlord-Tenant Relationship Act,⁶ modeled after the bill adopted in Oklahoma, was introduced in the Louisiana legislature in 1939. Its declaration of policy was to promote, foster, and encourage a closer and better understanding among landlords and

¹ Farm Tenancy, Report of the President's Committee. February, 1937.

² Oklahoma—Farm Landlord and Tenant Relationship Act, Senate Bill No. 272 (1937 session laws); Repeal of Farm Landlord and Tenant Relationship Act, Senate Bill, No. 82, (1939 session laws).

³ Farm Tenancy Commission of Arkansas, Findings and recommendations. November 24, 1936.

⁴ Iowa State Planning Board, Report and recommendations. Des Moines, Iowa. October, 1938.

⁵ Iowa—Termination of Agricultural Leases, Senate File No. 203.

⁶ Louisiana—Farm Landlord and Tenant Relationship Act, Senate Bill No. 153. Introduced by Mr. Rhodes, 1939.

tenants and to improve the tenant situation in the state of Louisiana.

Mr. Kersey Corey introduced an act cited as the Farm Tenancy Act into the Texas legislature in 1939 but this failed to pass. The purpose of this act was to establish a code of working relationships between Texas farm tenants and landlords in order to encourage the development of more profitable farming practices and to provide for the protection of the rights of tenant farmers and landlords. The act was modeled after the English Agricultural Holdings Act and was the first of its kind to be introduced in the United States. The increasing interest in the question of compensation indicates that additional bills along this line will be introduced in the future.

The need for research on the fundamental causes responsible for the growth of tenancy and for the forms tenancy has taken has become more apparent through these legislative proposals and committee reports. They suggest the need for developing ways and means of improving the farm tenure situation through an intensive educational program, through the modification of existing laws, and through the introduction of new legislation where deemed desirable.

During the past ten years much thought has been given to the development of a comprehensive land tenure research program. The American Farm Economic Association at its 27th annual meeting in Chicago, Illinois held a round-table discussion on the question of land tenure problems and research needs.⁷ Many workers in the research field have outlined the problems which need study.⁸

Upon the suggestion of representatives of the research staffs doing work in the field of land tenure in the land grant colleges, the Farm Foundation acted as the official sponsor for two conferences which were called to discuss the problem of integrating and

⁷ The following papers were presented: J. G. Maddox, Land tenure research in a national policy. *JOURNAL FARM ECONOMICS*, 19 (1): 102-111. Feb., 1937.

Rainer Shickele, Tenure problems and research needs in the Middle West. *JOURNAL FARM ECONOMICS*, 19 (1): 112-127. Feb., 1937.

C. A. Wiley, Tenure problems and research needs in the south. *JOURNAL FARM ECONOMICS*, 19 (1): 128-139. Feb., 1937.

These were discussed by: Lowry Nelson, O. G. Lloyd, T. Lynn Smith.

⁸ L. C. Gray, Mark Regan, Needed points of development and reorientation of land economics theory. *JOURNAL FARM ECONOMICS*, 22: (Sec. 2): 34-51. 1940.

M. M. Kelso, A critique of land tenure research. *Jour. Land and Public Utility Econ.*, 10 (4): 390-402. Nov., 1934.

Peter Nelson, Needed types of research on tenure problems. Annual agricultural conference for Southwestern States. Texarkana, U.S.A. Dec., 1939.

G. S. Wehrwein, Objectives and scope of research in farm tenancy. *Jour. Land and Public Utility Econ.*, 1 (4): 501-503, Oct., 1925.

O. D. Duncan, A sociological approach to farm tenancy research. *Rural Soc.*, 5 (3): Sept. 1940.

evaluating the various phases of tenure problems according to their proper relationship and importance.⁹

The Social Science Research Council in its *Scope and Methods Series* outlined research in agricultural land tenure. Dr. Wehrwein defined the field of research as follows:

"There are two main types of relationships between man and the land. One is land utilization, in which land directly serves human needs, furnishing raw materials, food, and shelter, and standing room. The other is land tenure, including in that term all the relations established among men determining their varying rights in the use of the land."¹⁰

Dr. Wehrwein further stated that land tenure research is concerned with the effect of the distribution of these rights in the use of land, in various forms, on the present and future social and economic welfare of the individual and society. He said that land tenure research should reveal how far and in what manner our land policies are responsible for the tenure systems of today.

In summarizing the research through 1933, Dr. Wehrwein stated that a survey made under his direction by M. M. Kelso of the published material on land tenure showed fifty-eight research studies in this field. Almost all of these dealt exclusively with the so-called agricultural tenancy aspects; none with the fundamental legal aspects, either in their historical or contemporary relationship. Twenty-six of the studies were primarily descriptive and were concerned with painting a picture of tenancy in this country. Fourteen dealt with the effects on land tenure, describing the location and function of the landlord, the financial experience of the operators, and the agricultural ladder. Eighteen were concerned with tracing the effects of tenant farming upon the fertility of the soil, rural communities, scale of living, farm management, and similar subjects.

CLASSIFICATION OF TENANCY STUDIES BY TYPE AND SOURCE OF DATA¹¹
PRIOR TO 1933

Types	Survey	Census	Question- naire	All Three	Misc.	Exp.
Descriptive	18	6	2	—	—	—
Effects on Tenure	6	4	1	1	2	—
Effects of Tenure	10	3	—	2	2	1
Total	34	13	3	3	4	1

⁹ Corn Belt conference on land tenure, Davenport, Iowa, June 2-3, 1939. Conference on land tenure, West South Central States, Texarkana, Texas, December 6-7, 1939.

¹⁰ Social Science Research Council, Research in agricultural land tenure scope and method, Bul. 20, 1933.

¹¹ Social Science Research Council, Research in agricultural land tenure scope and method. Bul. 20, 1933.

In a survey of the literature since 1933, one hundred and two studies dealing with land tenure were selected:

- 40 were principally descriptive
- 16 dealt with the effects on tenure
- 27 dealt with the effects of tenure
- 19 dealt almost exclusively with recommendations.

Almost all of the studies made since 1933 contain an analysis of the tenancy situation based upon factual material. Their primary objective, however, is to analyze the causal factors entering into the problem and to recommend necessary improvements. Studies dealing with recommendations suggest proposals for written leases, longer term leases, compensation for unexhausted improvements and disturbance, graduated land tax, and homestead tax exemption. Wehrwein and Kelso found that formal statistical methods

CLASSIFICATION OF TENANCY STUDIES BY TYPE AND SOURCE OF DATA
1933 TO DATE

Types	Survey	Census	Question- naire	Census & Other Data	Misc.
Descriptive	4	7	2	18	9
Effects on tenure	3	—	—	10	3
Effects of tenure	6	2	1	16	2
Recommendations	1	—	1	7	10
	14	9	4	51	24

had been used in very few of the fifty-eight studies in their survey. Cross-classification of averages was about as far as most of them went. Very few of the one hundred and two recent studies which were reviewed used formal statistical methods in their analysis. The majority merely presented factual material. Cross-classification of averages was frequently used. Some of the studies employed the graphic method of presenting factual material.

Wehrwein and Kelso found that in 1927 the experiment stations reported seven projects relating to farm tenancy and ten in 1931. They pointed out that Master's and Doctorate thesis studies dealing with certain phases of land tenure research were under way in many of the experiment stations in 1933.

In 1940 a survey of the work under way at experiment stations shows that twenty-six states are working on fifty-three projects dealing almost exclusively with phases of the land tenure problem related to farm tenancy. The type of projects and the number of each may be listed as follows:

<i>Type of project</i>	<i>No.</i>
To delimit the type-of-tenancy areas and to describe the present tenancy situation in each area.	12
Land tenure and its relation to land use, conservation, development, and agricultural adjustment.	14
Economic significance of farm leases.	9
Economic implications of landlord and tenant legal relationships.	4
To determine whether or not compensation for unexhausted improvements was employed by landlords and tenants.	1
Land tenure, ownership, and transfer.	3
Labor as part of the tenure pattern.	3
Social implications of the American tenure system.	1
Institutional factors entering into rent determination	1
The public as landowner and land manager.	5

In addition to these projects, the Bureau of Agricultural Economics of the U. S. Department of Agriculture is cooperating with state experiment stations in zoning studies, public land management studies, grazing district studies, and water studies, which are all a part of the land tenure problem. This paper, however, will be concerned only with studies which deal specifically with farm tenancy.

To Delimit the Type-of-Tenancy Areas and to Describe the Present Tenancy Situation in Each Area

The objectives of the studies to delimit the type-of-tenancy areas and to describe the present tenancy situation in each area are:

1. To delimit the various types of tenancy areas and sub-areas in the state.
2. To describe the tenancy situation in each area.
3. To outline the type of agreements entered into between landlords and tenants.
4. To develop appropriate techniques to be used in similar studies in other states.
5. To present some of the problems of tenant farming and some possible methods of adjusting them.
6. To indicate additional tenancy studies that should be made in the near future.
7. To relate type-of-tenancy to type-of-farming areas.

The Bureau of Agricultural Economics is cooperating with all of the states undertaking this study. The objective of the first study has been to develop the procedure to be followed in determining the type-of-tenancy areas in the United States. It is planned to outline the type-of-tenancy areas with reference to both the

nature and the intensity of the tenancy problem. The study will do more than merely describe the growth and distribution of tenancy within the state. Most of the research work in the past simply inventoried the situation as it existed at the time of the census dates. If these current studies are to be significant they must bring together all of the factual material that is available within each of the regions and determine analytically the effect upon the economic and social position of the various individuals among whom the rights are distributed and upon the farm; and, based upon this analysis eventually determine the problems which exist within a region and formulate recommendations for the social, economic, and political changes which are needed.

The research workers interested in this project intend to get together during the latter part of February to study and evaluate the various methods and techniques used in delimiting type-of-tenancy areas and to outline and evaluate the type of findings that will result from such an approach.

*Land Tenure and Its Relation to Land Use, Conservation,
Development, and Agricultural Adjustment*

Most of these projects are concerned with farm management phases of the farm tenancy problem. They seek to find out the relationship of tenure to farm organization, agricultural conservation, adjustment, and relative earnings of farms under different forms of tenure. In addition, many farm management studies treat incidentally the subject of farm tenancy. It was frequently found difficult to administer the various action programs of the Federal government because of the existing tenure pattern. This necessitates a study of the effect of land tenure on conservation and of the need for improving the relationship between landlord and tenant. Lack of reasonable assurance of occupancy is often given as the cause of an exploitative system of farming.¹²

The terms of a lease are of primary importance in determining the combination of resources on the farm and the efficiency of operation, which determine in the long run the well being of the farmer and his family. Most farm management studies do not deal with the effect of limitation of capital, uncertainty, and risk on the combination of resources within the farm.¹³ Furthermore, most farm management studies do not investigate the basic features

¹² Rainer Schickele and John P. Himmel, Socio-economic phases of soil conservation in the Tarkio area. Iowa Agr. Exp. Sta. Bul. 241. Ames, October, 1938.

¹³ T. W. Schultz, Capital rationing, uncertainty, and farm tenancy reform. Jour. Pol. Econ., 48 (3): June, 1940.

inherent in tenancy which are closely related to the conserving of soil and human resources. We need to determine the effect of management upon earnings and the possible effect upon the economic and social well being of the farmer of using capital for operating purposes, rather than in fixed investments.¹⁴

Economic Significance of Farm Leases

Many of the descriptive studies deal with farm leases. Most of these studies suggest the need for improving the leasing system. Frequently they describe the leasing provisions in use on successful tenant-operated farms. In spite of all of these studies now in progress, and the pointing out time after time that if landlord and tenant adopted a written agreement great improvement could be made, only a small percentage of tenant operators in the United States use a written lease. It is not the objective of most of the projects on farm leases to analyze the economic significance of the various lease systems, but simply to outline the provisions in use by landlord and tenant. Some indication should be given of the economic and social effect upon all parties concerned. The lease is a means of indicating the distribution of rights between the two parties. None of the present studies point out the effect of the wide difference in the bargaining power of the landlord and tenant upon the distribution of rights between the individuals and upon the economic standing of the two parties. Many recent articles show that short-term leases are the cause of uncertainty and insecurity of tenure, and that, if the provisions of the lease were changed to provide reasonable assurance of continued occupancy of the farm, a good many of the evils now associated with tenancy could be corrected. Lease studies need to be directed toward the isolation of factors in renting per se which produce bad effects. They need to give more attention to the economic significance of the various lease forms used.

Economic Implications of Landlord and Tenant Legal Relationships

Until recently no consideration has been given to the laws governing landlord and tenant relationships. During the depression period it became evident that it was necessary to study the impact of the law upon these relationships. Studies have been completed in Missouri, Illinois, Iowa, Oklahoma, Ohio, and Oregon-Washing-

¹⁴ L. J. Norton, Joseph Ackerman, and C. R. Sayre, Capacity to pay, and farm financing. Ill. Agr. Exp. Sta. Bul. 449. Urbana, December, 1938.

ton.¹⁵ These studies have been concerned chiefly with the presentation of the laws governing landlord and tenant relations, including constitutional and statutory provisions and court decisions, as well as common law rules covering the relationship between the two parties. However, most of these studies suggest remedial measures to change the legal structure where it does not meet present needs. Studies are under way in Kentucky, Arkansas, Kansas, and Virginia. Based upon the experience of current studies, future studies will give greater emphasis to the social and economic impact of the present laws on landlords and tenants and the effect that a change in the laws would have upon the social and economic status of those affected. Studies of this type are basic to an understanding of the tenure pattern. The institution of tenancy, as it developed, was influenced quite largely by statute, custom, and tradition. If one is to understand the growth, development, and variations in the tenure pattern, it is extremely important to know the economic and social implications of the legal aspects of the problem. Studies of this kind should be made in every state and then combined into a study for the entire United States. Such an analysis would enable one to interpret and understand the variations in the growth and extent of farm tenancy.

If one is to evaluate the possibilities of improving landlord-tenant relationships by legislative means, a knowledge of the existing legal status of landlords and tenants is indispensable. An understanding of the economic and social implications of present laws and statutes will help a great deal in reaching a sound judgment regarding the possibilities and limitations of statutory regulations. It is not possible to solve all tenancy problems by modification of the statutes. Mutual cooperation, education, and the development of a sense of responsibility by both landlord and tenant are essential. All that legislation can do is to provide the minimum standards in the landlord-tenant relationship which will bring about a clearer understanding of the rights and responsibilities of the two persons and prevent practices distinctly detrimental to the land and to the community.

¹⁵ J. H. Dickerson, Proposed adjustments in the farm tenancy system in Missouri. University of Missouri, Res. Bul. 270. Dec., 1937.

H. W. Hannah and Joseph Ackerman, Legal aspects of farm tenancy in Illinois. Univ. Ill. Bul. 465. April, 1940.

M. Harris, A. H. Cotton, Rainer Schickele, Some legal aspects of landlord-tenant relationships. Iowa State College Bul. 371. April, 1938.

W. J. Coleman and H. A. Hockley, Legal aspects of landlord-tenant relationships in Oklahoma. Okla. A. and M. College Exp. Sta. Bul. No. 241. August, 1940.

H. R. Moore, Some legal aspects of landlord-tenant relationships in Ohio. Ohio State Univ., Dept. Rural Econ. Mimeo. Bul. No. 119. December, 1939.

Northwest Regional Council, Some legal aspects of farm tenancy in Oregon and Washington. Portland, Oregon, November, 1939.

To Determine Whether Or Not Compensation for Unexhausted Improvements Was Employed by Landlords and Tenants

Closely related to the lease studies is the Indiana study on compensation of tenants by landlords or of landlords by tenants for items not included in the annual settlements at the time the leases are terminated. Almost all of the studies which have as their objective the recommendation of improvements in the landlord-tenant problem indicate that compensation for unexhausted improvements is one important means of attaining a desirable tenure pattern. The objective of the Indiana study is to determine the extent to which landlords and tenants settle at the termination of the lease for improvements made by the tenant, for disturbance of the lease, and for deterioration of the property. No formal statement has been released as yet, but preliminary mimeographed reports show that very few provisions were made for compensating tenants or landlords for unexhausted improvements. As far as research studies show, about the only adjustment that has been made at the termination of the lease period has been for the seeding of legume crops. In some instances some provision is made for reimbursing the tenant for fall plowing. Payments to the tenant for disturbance, or to the landlord for the deterioration of the resources are very few.

The introduction in the Texas legislature of a farm tenancy act patterned after the Agricultural Holdings Act of England indicates the necessity of studying the economic and social implications of such a law. According to Brandt legal reforms may be used to create a marginal preference for owner operation. He says that to some extent this has been a by-product of the English tenancy acts, which have so diminished the monopoly of landlords that they have become the weaker group and have begun to sell out to tenants when the general economic situation has turned against them.¹⁶

Present studies need not only to determine whether compensation is to be given, but also the rate of compensation which should be paid under various circumstances. It is necessary to study the declining productivity of the land under various cropping systems in order to discover the effect of the cropping system on soil fertility. During the past several years workers at the Ohio Agricultural Experiment Station at the Ohio State University have developed a method of calculating the annual rate at which soil improvement or deterioration takes place as a result of cropping.¹⁷ More studies

¹⁶ Karl Brandt, Farm tenancy in the United States. Social Research, 4 (2): May, 1937.

¹⁷ F. L. Morrison and J. I. Falconer, The relationship between soil maintenance and profitable farming. Ohio Agr. Exp. Sta. Bul. 604. Wooster, June, 1937.

of this kind are needed before we can fully understand the need for a provision in the lease for compensation to landlord or tenant.

Land Tenure, Ownership, and Transfer

The problems associated with ownership are not fully understood. The President's Report attacks our present system of private property. In the report one finds: "of American institutional arrangements which have furthered the growth of tenancy, probably the most important is the holding of land as private property in fee simple absolute. In an unmodified form this system of tenure in rural areas has permitted, and now permits, the accumulation and transfer of real property with little or no restriction as to its use or disposition."¹⁸

In spite of the importance attached to ownership, there are only three projects which deal with ownership aspects of farm land and problems encountered in the settlement of new regions. Most of the criticism directed toward land tenure research indicated that the ownership phases of the tenure problem should receive much more attention. These projects study only a few of the aspects of the ownership pattern.

There are many people who feel that the solution of the land tenure problem lies in the converting of all tenants into owners. Ownership studies, therefore, must be made considerably broader so as to include a study of capital rationing, uncertainty, and risk as they determine the combination and utilization of the resources on the farm and the effect of this combination of resources upon the economic and social status of the operator.¹⁹

The attitude of people as to the desirability of ownership may change. If one can have reasonable assurance of occupancy it may be more to his economic and social advantage to utilize his available resources as operating capital.

Very few investigations have gone into the problems associated with inheritance. Undoubtedly many of our present day problems, if the truth were known, could be traced directly to the past policy of inheritance. If the farm is to continue as a productive unit it cannot be repeatedly divided among heirs. Undoubtedly we can learn a great deal from foreign experience, but if we are to be of greatest help we must consider the institution as it has developed in our own country. Should our farms be expected to pay for themselves each generation? If not, what should be the pattern? What should be the function of the landlord? How rapidly should one

¹⁸ Report of the President's Committee. Farm tenancy, p. 39, February, 1937.

¹⁹ T. W. Schultz, Capital rationing, uncertainty, and farm tenancy reform. Jour. Pol. Econ., 48 (3): June, 1940.

climb the agricultural ladder? These phases of ownership problems have not received their due consideration in past investigation.

Labor As Part of The Tenure Pattern

Labor is considered one stage in the process of acquiring farm ownership. It was not thought of as a separate and distinct problem of land tenure.

The administration of governmental programs, conservation payments, and mechanization of agriculture have brought out the need for studying the effect of mechanization and of the agricultural adjustment program upon the tenure system. It is necessary to recommend readjustments of the present difficulties in landlord-tenant relationships with a view to formulating state and national policies.

Louisiana has recently released a study, *The Sugar Cane Farm, a Social Study of Labor and Tenancy*.²⁰ This study will be continued at Louisiana and will be undertaken at two other state experiment stations. These studies are of particular interest and value, in the first place to planters as a source of factual data, and as a clearing house for information relative to labor and tenancy practices. Governmental and other agencies have urgent need for factual data with reference to labor and tenancy arrangements for the purpose of formulating and administering future agricultural programs. No doubt with the advent of the national defense work in the United States much more mechanization will take place on farms, and consequently at the end of our rearmament program the necessary readjustment will find laborers expecting to return to the farm out of employment. Future research programs will undoubtedly give more emphasis to the problems of farm labor. The migratory problem will have to be treated on a factual rather than an emotional basis.

Social Implications of the American Tenure System

Mobility of farm tenants is frequently mentioned as the chief causal factor of soil depletion, erosion, and low income of the tenant farmer. Many of the general descriptive studies discuss the mobility of the tenant farmer. There is only one project, however, which deals specifically with mobility in farming. Its object is to study the relationship of and correlation between social mobility and certain socio-economic factors, the relationship between excessive mobility of farming people, social and economic stagnation, the adjustments possible in rental contracts for tenants, and to

²⁰ Harold Hoffsommer, *The sugar cane farm, a social study of labor and tenancy*. Louisiana Bul. 320. June, 1940.

show the improvement which may be brought about by educational direction of farm people generally. There is need for much more detailed study on this question, and undoubtedly this will be done. What we need to isolate in a study of this kind are the factors in mobility which have a bad effect. All mobility is not bad. If people move from a farm as they improve in experience and training, or if they move to a farm which is better adapted to the type of farming which they follow, the move may mean economic progress. Our agricultural system is highly dynamic—retirement, death, and foreclosure result in the movement of our farm population. However, all of the general studies which have dealt with mobility as one aspect of the problem say that many of the evils associated with landlord-tenant problems may be traced directly to mobility, and they indicate the need for additional studies of this problem.

Since many of the differences are human factors, it is necessary not only to study the social, economic, and legal implications of mobility, but also the psychological factors. If we can determine ways and means for different persons to get along with one another, we can do a great deal to improve present relations of landlords and tenants. Undoubtedly many of the studies which will deal with the factors affecting the attitude of landlords and tenants will help to correct some of the problems of excessive mobility.

Institutional Factors Entering into Rent Determination

None of the leasing studies in the past have dealt with the institutional factor entering into rent determination, although many studies have indicated the need for arriving at equitable rental terms. The theoretical study of the terms of an equitable rent has never been thoroughly explored. In a recent publication by B. R. Rawlings, Jr., and O. R. Johnson²¹ the question is raised as to what constitutes an adequate farm unit capable of supporting a tenant with a satisfactory standard of living and returning rent to the landlord. They point out that it is possible to conceive of a situation where a given farm unit is adequate for an owner-operator, but not adequate for a tenant-operator. Many farm management studies which say that a larger farm unit produces a larger income only confirm the statement that size and productivity are two important factors to consider. The question of determining the true economic rent is also brought out by Rogers when he says: "It is the business of a landowner to learn what rent land will bear, how to adjust it to the market, and it is no excuse to allege that foolish tenants have offered him rents they could not possibly pay."²²

²¹ Relationship of productivity of farm units and their ability to pay rent. Univ. of Missouri Res. Bul. 308. Nov., 1939.

²² Rogers, *The economic interpretation of history*, p. 173.

The Missouri study points out the need for leasing agreements to make a correction in the amount of rent paid for variation in the quality of land and the size of the unit. Undoubtedly many problems of soil erosion and soil conservation can be traced directly to the rigidity of rental terms. If the farm is not adequate in size and productivity, it will not enable the tenant to maintain a reasonably satisfactory standard of living. If the income is not satisfactory, he may receive no return on his capital and in time may even exhaust it. However, such a situation can prevail for only a limited time before the operator will have to seek his living in another employment. I have mentioned only these few points in order to emphasize the need for further research on this subject. (Since it is not necessary for all institutions to study this problem, it might be advisable to wait until the study now under way at Iowa is completed before undertaking one in another institution.)

The Public as Landowner and Land Manager

In recent years county and state governments have been facing many problems resulting from wholesale tax delinquency and reversion of privately-owned lands to public ownership. As a result of the vast acreages passing into public ownership, there has been a shrinkage of the tax base, with a resulting decrease in public revenue. Consequently local governments have had difficulty in providing for the institutions already in existence. Since many counties now owning large acreages of land need a large income, it is necessary that they develop an effective system of land management in order to assure the most productive use of the public domain and to furnish additional income to offset decreasing taxes. This is only one phase of the problem that might be studied. Very closely related to this are studies in rural zoning as a means of controlling the rights of individuals. Zoning has long been used in the development of cities. It has only recently been used by states as a tool in enforcing the public rights in the use of land.

Summary

In summarizing land tenure research, we find that increased attention has been given to the problems of land tenure during the depression years. The institution of land tenure has been influenced by custom, tradition, and legal control of the relations between man and man and man and the land. Many present recommendations for the solution of the problem are based upon emotion. The importance that this subject is receiving in literature demonstrates the need for further study of all aspects of the problem. Since the problem is a complex one involving economic, social, and legal

phases, it will not be easy to arrive at a definite solution. It is very difficult to know what determines the attitudes and actions of people and how personal relationships can be regulated. Further research work should be directed toward evaluating and integrating the importance of various relationships.

The economist may not have the job of determining the goal, but it is necessary for him to analyze the social and economic aspects of all changes from the point of view of the individual and the general welfare. He must study the probable income effects of following alternative tenure systems, and must ascertain the essential inconsistencies among the various aims which society is trying to attain in suggested land tenure reform. We need to know more about the fundamental causes responsible for the growth of the present tenure system and for the forms which it has taken.

In a review of the projects under way, it is apparent that there is much duplication of effort. Further conferences in the field of land tenure should help to work out a plan to divide the responsibility for work.

NEEDED RESEARCH IN FARM TENANCY

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Research in farm tenancy is concerned with (1) describing, (2) analyzing the causes, (3) appraising the economic and social significance and (4) suggesting socially desirable modifications in the various ways in which property rights in farm land are shared between the owner and the user. The way in which these property rights are shared between the owner and the user has several effects—it may affect the use of the land or its value; it may affect the security, stability and livelihood of the people involved; it may affect the condition and quality of the land; and it may have important effects on social stability and long-time social welfare. These effects will vary from one kind of land or land use to another, even though the same way of sharing rights is applied to each; and the way the rights are shared on a single piece of land will change from time with consequent variation in the results that flow from the sharing of such rights. Research would be expected to discover and appraise these differences and to suggest modifications in the sharing of rights that would enhance the desirable and minimize the undesirable consequences. To agricultural economists concerned with the security, stability, and livelihood of farm people and the conservative use of land resources, the nature, causes and significance of the various ways of sharing property rights in farm land must be of considerable concern.

Farm tenancy is only one phase of agricultural land tenure; the latter refers to all rights of property in land and to the various ways in which those rights are shared among all participants in the control and use of land. Under all circumstances, land is held under some form of tenure; but at any given moment any single piece of land is held under some particular tenure form. The question is always one of just what distribution of rights does attach or should attach to a given piece of land. Consequently the limitations and advantages of farm tenancy or of different kinds of farm tenancy must be expressed as relatives to other forms of tenure or tenancy in agricultural land and not as absolutes in terms of themselves.¹ It is not a question of whether tenancy as a whole or any single form of tenancy is good or bad in terms of itself but whether tenancy in its varying manifestations is better or worse than that form of tenure which it may replace or which may replace it.

¹ O. D. Duncan, A sociological approach to farm tenancy research. *Rural Sociology*, 5 (3). Sept. 1940; and C. A. Wiley, Tenure problems and research needs in the South. *JOURNAL FARM ECONOMICS*, 19 (1). Feb. 1937.

A form of tenancy seemingly similar in terms of the usual criteria by which we identify tenancy forms may, from the vital standpoint of the people, the land or society, be of different significance in two situations at the same time, because of differences in the other tenure forms with which it is associated. The stock-share tenant on a heavily mortgaged farm, for example, may be in quite a different position, so far as his prospects for continuous occupancy are concerned, as compared with a stock-share tenant on an unmortgaged farm. In order to assess the significance of stock-share tenancy in this situation and to develop ideas for meeting any problems it may exhibit, a knowledge of the effects of that tenure form known as "mortgaging" is required. And conversely, to understand mortgaging and its significance in this situation, a knowledge of the effects of stock-share tenancy is necessary.

Research in farm tenancy cannot for these reasons confine itself to tenancy alone. Tenancy, being a part of the whole structure of land tenure, can be completely understood, its significance can be assessed and programs for the amelioration of the problems it produces can be reasonably adequate only when it is studied in the setting of the mixture of tenure forms of which it is in reality a part.

This leads to the conclusion that needed research in farm tenancy calls in reality for needed research in the combinations of tenure forms as they actually exist on the ground—combinations in which tenancy is an actual or a possible element.

A brief description of the structure and content of rural land tenure will be helpful in understanding the research needs subsequently pointed out, and will also show where in the whole structure of tenure and in what relationships to other tenure forms farm tenancy stands.

Public or Private Ownership

First, all land is either publicly or privately owned. Usually the distinction is clear and definite; not infrequently tax delinquency results in a tenure situation in which no one knows just who does own the land or just how or among whom the rights in it are distributed.

Second, privately-owned land is not the absolute possession of the owner. His rights of use and control must be shared with the State, which exercises control over his use of land through the police power, taxation, and eminent domain.

Third, the private owner may share his rights with other private parties through tenancy, mortgaging and the like.

Fourth, the public owner may (and more frequently than not does) share its rights with private parties as "users" of the land.

This sharing of the rights by the public with private parties in this country takes place on one of two ways: (a) With the population as a whole with equal rights of use to all, as in the case of public parks, roads, etc., or (b) with specific members of the population with special privileges to them to the exclusion of all others, as in the case of grazing or lumbering rights on public lands.

Fifth, ownership rights in our society, whether they are public or private, attach to parcels of land—we call them ownership units—which are rights to space and resources measured on the earth's surface.

Sixth, any and all rights in land in our society except those of police power, taxation, and eminent domain may be shifted about almost at will from party to party within the same generation or from one generation to another.

Seventh, private rights in land are established and maintained for social purposes at the will of and under the protection of the State; whenever the group believes that its welfare would be better served by a shifting of these private rights either between private parties or from private parties to the public, it has the inherent power to bring about the change. But when the private owner for whatever reason no longer desires to assert his rights and can find no other private party willing to assume them, his rights in our society will become the property of a unit of government. Society through its government can, then, grant rights in land, can retake rights in land, but it can also have rights thrust upon it.

A satisfactory description and classification of the subject matter to be studied is the essential first step in any research endeavor. Research in tenancy and tenure is no exception; our first need is for a description of the various tenure arrangements and of the complex associations of tenure arrangements found in the several sections of the United States, found on different kinds of land and in association with different kinds of land uses. Insofar as the associations of different tenure forms vary geographically, they should be segregated and described in geographic areas. Research in land tenure can be much more sharply focused if we have an adequate descriptive base on which to conduct it. Not infrequently a single tenure form, say share renting, may appear similar in two different areas, but because it is associated in one area to a considerable degree with nonresident, unmortgaged, corporate owners and associated to an equal degree in another area with resident, mortgaged, individual owners, it may in reality exhibit different characteristics and require different treatment in the one area as compared with the other. Research conducted to study share tenancy must be aware of this variation in the nature of the share

tenancy to be studied; what must be guarded against is the inclusion of such variation in the study without recognizing it.

An adequate description and classification of tenure forms and their combinations is no simple task. As much ingenuity, and probably more insight and imagination, is required for an adequate description and classification of tenure phenomena than is required for their analysis and appraisal. An inadequate or superficial description will cover up vital variations and relationships that may only be accidentally uncovered during the course of analysis and appraisal, thus possibly retarding, indefinitely, advance in our knowledge of the subject.

Our description and classification of tenancy forms has been incomplete and inadequate. When we gather primary data covering the relationships and arrangements under which rights of use and control over land are shared between landlord and tenant, we find an amazing diversity that goes far beyond the traditional categories of cropper, share tenant, cash tenant, etc. We find in one area for example, that the prevailing rental practice is for the landlord to have the right, which he exercises, to rent the pasturage of the stubble and hay fields after the crops are removed to other than the nominal tenant (or to him for an additional rental charge), while in other areas in the same State a nominally identical form of tenancy gives the tenant the rights to this pasturage and to the income from its sublease to others. Such variations are the rule rather than the exception the country over. When to these variations are added the varying tenure arrangements under which the landlord holds his property, the diversity of tenure forms and the ingenuity required in their description and classification becomes apparent.

Following description and classification of land tenure forms and combinations, more studies of the evolutionary history through which they have come are needed. We are familiar with the plantation antecedents to the present peculiar tenure arrangements of the South; we also are acquainted with the homestead policy and present tenure problems of the Great Plains. But we need to be far more intimately informed concerning the historical antecedents and evolutionary processes through which our contemporary tenure forms and combinations have developed in these and in many other sections.

There is much to be learned from studies of land tenure forms and combinations, their historical evolution, characteristics, and economic and social significance in countries having natural, economic, and social conditions comparable with our own. Research workers in tenancy and tenure in this country should be as thoroughly

familiar with the past and present of tenure in foreign countries essentially similar to our own as it is possible for them to be. Canada, whose land tenure policy has been similar to our own but where the rights of police power and eminent domain are held by the Dominion rather than by the Provinces, may exhibit differences in land tenure arrangements and governmental policy when compared with ours that may be significant for purposes of appraising the strength and shortcomings of our land tenure and governmental policy. The Mexican tenure-reform program and its historical setting and the Ejido as a tenure institution should be thoroughly understood by our own students of land tenure.

From the standpoint of the substance and content of land tenure, ownership—whether public or private—is its fundamental form; it is the cornerstone and foundation of our whole land tenure structure. Ownership as a subject for analysis and appraisal as one of the elements in the tenure complex will be discussed first because it is the basic element in the whole of our subject matter.

The owner of land is the holder of the right of permanent possession, a right which is evidenced by the possession of "title"—"title" is the badge of ownership. Ownership is not lost until title is lost regardless of what other rights are taken or bargained away. Mere possession of title is all there need be to ownership. Henry George, you recall, would not expropriate title although he would take all land income; Mill on the other hand would take the title also by eminent domain. Many owners of Western lands today hold a title but not much else in the way of rights and privileges.

In most societies, and more particularly in our own, many rights other than mere permanence of title—rights involving control over land use and income—adhere to the owner; rarely is he the holder merely of the right of permanent title. As we know the institution, the rights of purchase and sale, leasing and mortgaging, use and income all with greater or lesser freedom from regulation by the State, are attributes of ownership of land.

If we are to comprehend ownership as an element in our land tenure structure and understand its significance to the parties, the land and society, these phases of land ownership must be investigated: (1) public as contrasted with private ownership, (2) size and spatial relations of ownership units, (3) sharing private rights of ownership with the State, (4) subdivision of the fee and transfer of parts of it to other parties, (5) group or collective ownership, (6) absentee as contrasted with resident ownership, (7) voluntary transfer of ownership, and (8) transfer of ownership rights from private parties to the State in a sense against the will of the State.

Ownership Function

All land is owned by someone; the alternatives are not private ownership or no ownership at all but consist of various kinds of private ownership shading off into public ownership. Some kinds of rural lands are better adapted to private and some others to public ownership; some uses can better be practiced on public lands and some on private lands. We will, no doubt, generally agree that public parks and public roads should be on public lands and that arable agriculture should be practiced on private lands. These are the extremes; what of all those uses of rural lands that fall between? Where should the dividing line between private and public ownership be drawn? How about timber lands, grazing lands, water supplies, recreation lands (such as for hunting and fishing, lake-shore lots, and sea-shore recreation)?

While we discuss this subject here some governmental agencies in our country are trying to take land back from private ownership while others are trying to put public lands back into private ownership, and vast areas of privately owned lands are being abandoned to government by their private owners. The Federal Government and the State of New York, independently, are buying rural land through submarginal land purchase and through forestry programs, while many other States are trying continually and almost desperately to get State and county owned lands into private hands. Have economists any real basis in research for aiding these governments to cope with their confusing and frequently distressing situations in regard to public as contrasted with private ownership of land? Can we give them any real advice as to the adaptability of various kinds of land and land uses to public as against private ownership and vice versa? What is the significance to the users of the land, to the land itself and to society generally of public as contrasted with private ownership of various kinds of lands and land uses? Where should the line between the two be drawn? Public ownership of land adds to the volume of tenancy because much of the public land is used by individuals under agreements with the public landlord. Research in public ownership as a form of land tenure possibly adapted to certain kinds of lands and situations implies, then, research in tenancy—private tenancy on public lands; and, conversely, research in tenancy designed to explore means for improving the social consequences of alternative tenure forms must explore public ownership and the form of tenancy it produces as a desirable means under suitable conditions for improving the consequences of tenure.

Ownership of land in our society always attaches to some unit of land measured on the earth's surface. The significance of this

fact lies chiefly in the further fact that land is also *used* in units measured in terms of the earth's surface—a circumstance that produces problems of relationship between ownership and operating units. There are only three possible relations between size and spatial relations of ownership and of operating units: (1) They are coterminous, (2) ownership units are differently located spatially and are smaller than operating units and consequently must be consolidated by some tenure device into operating units, or (3) they are larger than operating units and so located spatially that they must be subdivided by some tenancy device into operating units.

Identity in size and location of ownership and operating units does not necessarily mean owner operation; tenant operation could take place and is, in fact, the situation on many Corn Belt farms where ownership and operating units are coterminous. Identity between ownership and operating units is, generally, assumed to be the ideal situation, although just why is not always clear; investigation should prove or disprove the notion.

Ownership units larger than operating units have been frequent subjects for considerable hue and cry—they are “land monopoly,” they deny “access to the land” (meaning ownership no doubt) to the less privileged. To what extent are such charges justified? Ownership units larger than operating units necessarily imply some kind of tenancy. Hence the significance of large ownership units will be determined in part through an appraisal of the effects of the related tenancy form; but there is more to it than that alone. The fact that the landlord half of the relation is the landlord to more than one tenant may considerably affect the significance of the tenancy structure there found. Through the tenancy structure created by large ownership units and because the characteristics of the owners of these larger units are likely to be significantly different as compared with the owners of smaller units, study of the significance to the parties, the land and society of large ownerships may show many significant effects deserving social attention.

Ownership units smaller or so located spatially relative to operating units as to require some kind of tenure consolidation are a serious problem retarding land-use adjustments in many sections—in the Great Plains where they hinder shifts from cash crop to livestock farming and grazing; in the South where they prevent shifts to forest uses of land. To consolidate ownership units into operating units requires some tenure device but probably one very different in its content and effects than that required for the subdivision of larger ownership units. The significance of the tenure form each creates may be quite dissimilar; but, what is more important, the ease by which a tenancy agreement involving subdivision of a large-

er ownership is completed is as nothing compared with the difficulties, frequently insurmountable, of negotiating a lease agreement where consolidation of small ownerships is needed. These difficulties in consolidating ownership units lead to all sorts of undesirable results—use without any contract whatever (the most vicious kind of exploitation resulting), or a real and decidedly noticeable retardation of desirable shifts to more extensive systems of use. What is the full significance of these effects? What are the relations of the ownership unit pattern and the operating unit pattern in various areas, and what appropriate remedial action can be formulated?

The private owner shares his rights of use and control with the State by reason of the rights of police power, eminent domain, and taxation, held by the State. Much work needs to be done on these phases of land tenure to assess their significance to land use and value and related phenomena but we will pass them by with only one observation concerning their relation to tenancy: An understanding of any particular form of tenancy requires, among other things, knowledge of the effect on it of the police power and taxation rights exercised by the State on the ownership side of the landlord-tenant relationship. The effects will differ with the type of landlord-tenant relationship, with the tenure position of the "owner" and with the land use conditions existing at each time and place.

The owner of land may split up his "title" to land in the most complex ways and transfer parts of it to others. The most usual subdivision of title is between surface and subsurface use. Dividing the fee into these two portions often has pernicious effects upon the use of the fee remaining to the surface user—sometimes operations on the surface are impeded, sometimes there is outright conflict between the different uses of the different parts of the fee. The problem is serious where owner operation alone is involved; but when tenancy is introduced, the impact upon the rights and opportunities of the tenant, as well as upon the landlord, and the consequent significance of the tenancy institution under these conditions is a matter of considerable importance in areas of active mineral development. For example, in the many and continually expanding areas where oil activity is taking place, the problems presented by the tenure phenomenon of "fee-splitting" are enormous.

Group Or Collective Private Ownership

Corporate ownership is not new in land ownership—Western lands, forest and mineral lands, and certain agricultural enterprises, such as ranching, plantations, and certain specialty producers have for decades been to a significant degree in corporate

ownership. What gives the phenomenon of corporate ownership peculiar significance now, however, is its growing importance in agricultural land ownership through the foreclosure of mortgages. Corporate ownership has frequently been described as a speculative, exploitative or "selling" ownership—characteristics that are generally considered to be detrimental to social interests. To what extent do the facts bear out the hypotheses? Why does corporate ownership exhibit these phenomena, how really significant are they and are they a necessary part of corporate ownership? Certain elements in the corporate personality should make it a good landowner from the public viewpoint—its timelessness, its usual financial strength, the scale of operations it usually conducts, etc. Can these favorable characteristics be emphasized and the detrimental ones controlled? Or, should corporate ownership as a whole be discouraged? And, is the relation between corporate ownership and the problems it presents uniform for all types of land and for all forms of land use? Furthermore, corporate ownership always produces a tenure form which is not owner-operation. It will always create tenancy or hired-manager operation. Its social significance must be assessed in part, at least, in the light of this fact. Also, the form of tenancy associated with corporate ownership may be significantly affected as compared with its characteristics and effects when related to other forms of ownership.

Cooperative ownership has been of little significance in our land tenure structure. In recent years it has emerged as a possible form of tenure in the Great Plains where cooperative grazing associations are authorized to acquire but have not yet extensively acquired land. It has also been used in connection with certain governmentally sponsored resettlement projects. Cooperative ownership would seem to be a really useful device for consolidating ownership units into areas of sufficient size for efficient operation, particularly where intermingled operations such as are possible in stock grazing are feasible. Its possible application to operations in forestry should also be examined.

Absentee ownership leads to forms of tenancy that differ from those that emerge in connection with resident ownership. This is true for absentee ownership by individuals as well as for absentee ownership by corporations. In many sections of the country absenteeism is very common—why? What is the intent in ownership of the absentee? What is the absentee's appraisal of the quality, productivity, and value of his land as compared with its actual circumstances and condition? What is the trend in absenteeism in the areas where studied and what land tenure form is taking its place if it is decreasing, and what form is it replacing if it is increas-

ing? What are the relations between the absentee and the user and how do they compare with other tenure forms in the area from the standpoint of the parties to it, the land and society? What effect on land use and value does absenteeism have? Absentee ownership usually produces tenancy—it is in the light of this fact that investigation of it should be conducted. But absentee ownership in contrast with resident ownership—the difference in the character and behavior of the parties—is also a significant problem for study.

Voluntary transfers of ownership rights in land occur principally in two ways: By purchase and sale or by inheritance and bequest, the most common of which is the former. What motivates the buyer and the seller? Investment? Speculation? Or a desire to get a place to farm or to live? What is the length of the period between purchase and subsequent sale and is the period growing longer or shorter on the average than it has been in times past? From what and to what sort of owners are lands of varying kinds moving by the purchase and sale route? What relation is there between the motivations for and time periods between buying and selling on the one hand and the characteristics of buyers and sellers, the form and numerical importance of tenancy, and the patterns of land use and levels of land values on the other hand?

Inheritance and bequest as a means of transferring landed property is of far less importance in this country than in some others. But just what is its numerical importance among all transfers and among transfers of different kinds of lands and by different kinds of owners? From what sort and to what sort of owners are lands of varying kinds passing via inheritance? What arrangements for passing the property are made, what kinds of estates in land are created, and what are their various effects on the participants, on the land, and on society? What relation is there between the processes of inheritance and any changing characteristics of ownership and tenancy, such as increased mortgaging, subdivision of ownership units, and nonresident ownership?

In their most acute form, the problems growing out of heirship systems with regard to land will be found on Indian lands. Theresa Lemieux, a fourth generation heir to the 80-acre estate of Lizette Denomie, a Chippewa of Lac du Flambeau, Wisconsin, holds 264 of the 187,110 shares in her forebears 80 acres (an interest amounting to an undivided .11 acres) and she is but one of 39 living heirs. Heirship of this sort leads to one of two results—leasing of the land to a single user because the heirs cannot use it as a group and all the consequences of exploitative tenancy, or sale of the land to “pay off” the heirs. Among whites, the granting of a life estate to an heir, the property upon the death of the holder of the life estate to

pass to another family or group, frequently results in the most vicious exploitation of the land in order to realize the most cash possible out of it before the holder of the life estate loses it.

The transfer of ownership from private parties to the State frequently against the will of the State takes place through the channel of tax delinquency and forfeiture. What happens to the land and to the people directly involved during the period of transition from one owner to another through these channels? As a result of the transition, the land involved becomes publicly owned. What effect does this have on the use and value of the lands immediately affected but also what effect does it have on other private lands in the same area? As a result of the land becoming public land, if it is put to managed use, it will generally mean an increase in tenancy—of course, of tenancy under a public landlord. Is this public landlord a stable landlord that will make possible and encourage a stable, secure tenantry, or will it present the same weaknesses so frequently deplored in ownership through mortgage foreclosure—an unstable ownership and hence an unstable tenancy? To what extent is tax-delinquent land a “no man’s land” and what is the significance of this condition on its owners and users, on the land itself, and on society?

So far, we have considered ownership as the basic element in our land tenure structure, but an increasingly important element in our tenure structure is the sharing of the owner’s rights to his land with other private parties. The owner who holds his land subject only to the rights of the State is becoming increasingly rare; increasingly the private owner is sharing his rights with tenants and creditors and, as the volume of public ownership grows, the sharing of rights in land by the public owner with private users grows in importance. Tenancy and mortgaging and, as a phase of tenancy, private use of public lands are closely related phenomena growing continuously in numerical importance in our tenure structure and about which more and more should be known if we are to be of real assistance in meeting any problems they may produce.

We probably know more about tenancy than about any other phase of land tenure; in fact, we are inclined to use the terms tenancy and tenure as synonymous. Investigations in tenancy have been made for years and although the progress of our knowledge about it has not been striking, the extent of interest in the subject is growing and volume and coverage of investigations into tenancy are continuously expanding. Consequently, I am confident that, although not all the elements in tenancy have been studied adequately, the development and growth of work in the field will lead to their more adequate coverage in the near future. There are still

many excellent research projects in tenancy outlined in the Scope and Method Bulletin on Agricultural Land Tenure that have not been initiated and might well be.

Certain aspects of tenancy that would seem to be timely subjects for research are: (1) How are incomes and expenses shared between landlord and tenant and by what criteria can "equitable rents" be determined; (2) what is the impact of mechanization and of benefit payments upon rents and upon the status and welfare of tenants, and what effects are these influences having on land use and value through any influence they may be having on tenancy; (3) what are the relations between rents and land values and is the relation changing—how and why and to what effect on tenancy and ownership; (4) we had many studies of the "agricultural ladder" during an era when it leaned upward; but a ladder is also a means for getting into a hole. It would seem appropriate to study the "ladder" now in retrospect of two decades of agricultural depression as compared with the "ladder" of previous decades. At the meeting of our Association in 1936, three papers on research needs to meet land tenure problems were presented. I would refer you to them, and particularly to Dr. Schickele's, for an excellent discussion of needed research in tenancy.²

These articles and tenancy investigations generally have dealt with tenancy as a phenomenon of private use of private lands. But always in the West and increasingly there and in many other sections, tenancy of private users of public lands is growing in importance. This phenomenon has been sadly neglected as a subject for study as a part of tenancy research. We need to study tenancy on the public lands from the same angle and with the same questions that we pose when we study tenancy on private lands; its characteristics and the problems it produces may be and probably are of the same order. Increase in public ownership is making this phase of our tenancy structure of increasing significance. How can we make sound recommendations regarding the disposition, management and use of this new public domain of ours without careful study of tenancy that public ownership creates?

Still more neglected, strangely enough, has been mortgaging as a phase of land tenure and in relation to tenancy. Mortgaging is frequently studied as a phenomenon of credit but not as a phenomenon of land tenure. In fact, most people think of mortgaging in

² J. G. Maddox, Land tenure research in a National land policy. *JOURNAL OF FARM ECONOMICS*, 19 (1): 102-111. February 1937.

Rainer Schickele, Tenure problems and research needs in the Middle West. *JOURNAL OF FARM ECONOMICS*, 19 (1): 112-127. February 1937.

C. A. Wiley, Tenure problems and research needs in the South. *JOURNAL OF FARM ECONOMICS*, 19 (1): 128-139. February 1937.

terms of principal and interest, annual payments, amortization and term of years. Actually, a mortgage is a tenure phenomenon given, of course, as security for a debt, but it is *not* the debt. A mortgage agreement transfers certain rights in land immediately upon its execution and may potentially result in the transfer to another of all rights held by the mortgagor.

Mortgaging creates tenure relations between parties of strikingly similar character and significance to those created by tenancy—the tenant “borrows” real estate, the mortgagor borrows liquid capital. From the standpoint of the security, stability, and livelihood of the land user and the use and value of the land, mortgaging may have effects indistinguishable from tenancy; frequently it may produce greater insecurity of people and greater exploitation of land than does tenancy.³ There is this important difference, however—the exploitative pressure on land by encumbered ownership is intensified in periods of depression and reduced in period of prosperity, while the exploitative pressure on rented land may be chronic because of the chronic insecurity of tenure of many tenants.⁴

What rights to land are shared in mortgaging and how and among what character of parties are they shared? They are amazingly diverse. There was a time when we thought tenancy was just tenancy, then we found cash and share tenancy and then an increasingly diverse and complex mixture of forms; I predict the same history for mortgaging—that the time will come following study of the phenomenon when simple generalization about the characteristics of mortgaging will be as difficult as we now find it to be to generalize in simple categories about tenancy. What economic and social effects do the different ways of sharing rights in land through mortgaging have on different kinds of lands and under different circumstances? Is the character of the parties to mortgaging changing and what is the degree of interest in management taken by the mortgagee? How are the rights in land transferred and what are the results of the transfers on ownership of the land and its use, management, and value?

We can't leave the subject of research in tenure without at least a mention of water rights. Water rights are a form of property in land; their characteristics and effects are extremely significant in land use and land value and in stability, security, and livelihood of rural people in the West. Water rights are comparable in many respects with tenancy on publicly owned lands—the water is

³ T. W. Schultz, Capital rationing, uncertainty, and farm tenancy reform. *Jour. Pol. Econ.*, 48 (3): 309-324, June 1940.

⁴ Rainer Schickele, *op. cit.*, p. 116.

"owned" by the State and rights to its use are granted in accordance with principles of priority and beneficial use laid down by the State. Notice how similar the principles of priority and beneficial use are to those of priority and commensurability applied in granting use rights to publicly owned grazing lands.

Investigations of each of the elements of land tenure outlined above will greatly enhance our knowledge of the significance of land tenure in its varying manifestations; we will be better able to assist society in finding appropriate remedies for the amelioration of problems created by our land tenure structure. But investigations, individually, into the separate elements outlined above will leave us short of total knowledge and in danger of conclusions unwarranted by the facts as they really exist. The land tenure structure erected by society over our rural lands is not made up of a collection of separable, unrelated parts; it is an interrelated whole—change in any part may affect every other part. To understand our rural land tenure, consequently, requires that we study it as complexes—not tenancy alone but tenancy related to ownership of varying kinds; not public ownership in general, but public ownership in relation to various ways of use by private parties and in relation to various kinds of lands and land uses. The significance and effect of the various elements of land tenure in combination are generally something more or less than the simple addition of their effects as single factors. The significance of mortgaged ownership in the landlord-tenant relationship cannot be assumed to be the same as its significance when tenancy is not a part of the situation; and the significance of tenancy cannot be assumed to be the same in the presence of mortgaged ownership that it is in its absence. The true significance of the mixed tenure form can only be assessed when studied as a landlord-mortgagee-tenant relation.

The same thing can be said with regard to every other element in land tenure. More needs to be done toward describing and classifying the combinations of tenure forms as they actually exist and toward studying the effects and significance of the varying combinations. Only when tenancy is studied in its setting as one form of tenure that exists in reality in various combinations of tenure forms, will we really understand it and be able with full confidence to recommend remediable programs for it.

DISCUSSION BY KARL BRANDT

Stanford University

The two papers that have been presented to us have dealt with what has been done; what, though necessary or desirable, has not been done; and what should be done in the future in the field of farm tenancy research.

Both papers are impressive testimonials to the advancement which thought on the subject of farm tenancy has achieved in this country in the few years since the nation actually came to grips with the problem of tenancy reform. It was only 4 years ago that the President's committee on farm tenancy issued a report bristling with sweeping statements and simplified assumptions about the supposed evils and the national menace of tenancy. A program of action to reduce tenancy followed in the same year.

In contrast to that all too hastily started crusade against this institution, both papers we have heard are based on an entirely different appraisal of farm tenancy, its merits and its shortcomings. Both are marked by a profound respect for the immense scope of legal, economic, and social institutions among which tenancy is only one, and neither shows any of the emotional confusion of cause and effect that prevailed in public discussion only a few years ago. Considering tenancy research as a means toward preparing reforms, both papers indicate the conviction that any improvements to be made require a broad conception of land tenure and its ramifications by those who are engaged in tenancy research.

Being at all essential points in agreement with the speakers, it remains only for the reviewer to add some suggestions, and to strengthen the emphasis on some observations made by the speakers.

In his survey of studies made since 1933, Mr. Ackerman has shown that among 79 of them, 50 used census material exclusively or in combination with other data. It seems unfortunate that the excellent and otherwise very exhaustive U. S. Census of Agriculture does not answer several basic questions concerning the character and extent of specific forms of tenancy. We do not know the extent of family tenancy or the kinship of landlords and tenants. Farms that are leased to and operated by close relatives are of little public concern because they are in effect hard to distinguish from owner-operated farms. We do not know whether family tenancy constitutes 5 or say 30 per cent of tenant-operated farms, nor do we know the regional distribution of this form of tenancy. This form of tenancy, however, is a protective supplement for family property in land.

We do not know either what proportion of tenant-operated farms or what proportion of the acreage under tenancy has banks or other former mortgagees as landlords as a result of foreclosures. Some increase in such tenancy is a byproduct of clearing the debris of the last depression. It is of a temporary nature, and as full industrial recovery is regained it will recede in favor of gains in owner operation.

The census has counted as tenants sharecroppers who have no right of management nor any property, and who should be counted instead as laborers on a share wage. It seems obvious that to include the entirely different issues of the farm labor situation complicates unnecessarily the research on farm tenancy and confuses the issues.

As Professor John D. Black¹ and the reviewer² have pointed out, fal-

¹ John D. Black and R. H. Allen, *The growth of farm tenancy in the United States*, *Quarterly Journal of Economics*, Vol. 51, May 1937.

² Karl Brandt, *Fallacious census terminology and its consequences in agriculture*, *Social Research* 5 (1), February, 1938.

lacious census terminology and other intricate changes in definition and enumeration have been the cause of much confusion about the degree of increase in farm tenancy.

All those who are engaged in farm tenancy should urge the Bureau of the Census to adopt methods of definition and of enumeration. At the same time they ought to encourage census monographs that would clarify such important issues of quantitative measurement of farm tenancy.

If we accept the assumption that farm tenancy research should aim primarily at showing workable solutions for reform, it should also be our endeavor to find out where and to what extent special forms of farm tenancy are functioning smoothly to the satisfaction of landlords and tenants, and what proportion of all tenant-operated farms shows friction and complaints of various sorts on the side of landlords or tenants. The proportion of contracts contested in courts is a crude indication of undesirable conditions. Perhaps this proportion is only a relatively small part of the whole. If and where tenancy operates to the mutual satisfaction of the private parties it may still be that the public has complaints, though this is less likely. Yet again, it would be desirable to devote quantitative research to this specific social defectiveness in the farm tenancy system and to the development of proposals for desirable adjustments.

In his conclusions, Mr. Ackerman points out the very unsatisfactory status of tenancy research and suggests that conferences should yield a plan for dividing the responsibility for the future research work to be done. Nothing could be more timely than this suggestion. Such conferences would perform a real public service in arriving at an agreement on the most urgent and most essential objectives of research for a longer period of years. Based on today's two papers the agreement on a research program would undoubtedly contain many subjects that are missing in the list of present research projects, and would delete many studies to which time and energy are now devoted. There is, indeed, such a phenomenon as zones of increasing and decreasing yield increments in research as well as in farming.

Mr. Kelso has competently given a general orientation for such needed conferences and for further research. The most valuable thought he develops is centered around his proposal to observe the whole pattern of all forms of land tenure as a complex living organism and to arrive thereby at an evaluation of farm tenancy and its function which does justice to the real objective of agriculture—a satisfactory social and economic life in the rural segment of our system, in combination with a satisfaction of material wants with a minimum of effort. Mr. Kelso sketches a broader philosophical background than has been conceived in most of the tenancy research work of recent years. Thereby he arrives immediately at a most valuable adjustment in emphasis. Exaggeration of the significance of the tenancy question within the agricultural setup is avoided, and at the same time a multitude of weaknesses in various other relations between man and land are brought to attention.

Mr. Kelso speaks elaborately of the rights of ownership, and their partial

delegation and separation. It seems useful to interpret the spirit of all contracts involving the "bundle of rights" of property as implying just as much a balance of obligations. Indeed, the unwritten ethics of such contractual relations has always consisted of a balance of duties as well as of rights for both parties to the contract. Without them, the contract becomes "immoral." It is no proof to the contrary that landlords as well as tenants frequently ignore the ethics of contract law by offering or accepting unfair contracts. Indeed, before the great legal reforms of farm tenure in Europe, farm tenancy contracts were often contested in the courts on the ground of being "immoral."

As a marginal note to Mr. Kelso's thought-provoking discussion, it may be mentioned that very slowly but steadily the underlying philosophy of contract law is evolving in a way that is bound to change the practical consequences of all contracts even more than specific acts of reform themselves. Several decades ago the employer-laborer relation was still interpreted as that of a private contract, entered voluntarily by both parties. The courts were interested only in whether the parties lived up to their agreement. After a long and painful struggle, after decades of fiercest public debate, political combat, and forensic wars in legislatures and in the administration of justice, it is generally accepted today that the labor contract is much more than a private agreement between two parties. The labor contract is considered as one that involves a multitude of obligations on both sides, as implied by publicly accepted and legally fixed standards. The relationship is subject to public protection and the fulfillment of certain obligations is enforced by the public regardless of whether they were repeated in the contract or not. Many rights and duties have become inalienable: they cannot be contracted out of existence; if one of the parties renounces them this renunciation is void.

The farm tenancy contract is still interpreted essentially as was the industrial labor contract before the great era of social reforms; that is to say, as a debt relation between two private parties which concerned no one else but them. Certain European countries have replaced this orthodox private law interpretation by a much more modern and creative philosophy. They look upon the tenancy contract as providing for a division of labor between equal parties in utilizing a productive unit entrusted by the nation more permanently to the owner, but temporarily also to the tenant; the one supplying land plus fixed capital, selecting the best operator available and supervising the competent treatment of land and improvements, and the other providing operating capital, management, and labor. Since property is also more and more interpreted according to the *esprit des lois* as a privilege involving very substantial obligations toward the commonwealth, the farm-tenancy contract is also slowly being moved from the strictly private sphere into that of public interest and public control. In the United States this process is beginning to get under way, as several bills in different states indicate. It is accelerated by the natural implication of extensive national programs of farm relief. The acceptance of public relief or subsidies to an amount of 15-20 per cent of aggregate income for

American agriculture has the inevitable result of creating obligations toward the public.

Hence this very slow but powerful transition is emanating from social and political forces much deeper than simply technical questions of land utilization. Since it finds its expression in laws and decisions of courts it seems a natural requirement that agricultural economists should consult with, or better, co-operate with competent lawyers. This seems the more desirable for those research projects which aim directly at developing proposals for measures of reform. Co-operation with mature students of law will be very helpful in avoiding the temptation to apply to farm tenancy standards that are out of line with those applied to owner-operation or other forms of tenure. The reviewer's own experience in the preparation of German legislation on farm tenancy reform has convinced him that, from a very early stage of research on to the final shaping of the bills, neither lawyers nor agricultural economists alone can possibly arrive at well-balanced and wise results. They must co-operate with each other, and both must consult with intelligent landlords and tenants in order to keep their feet on solid ground.

Closer co-operation between scientific disciplines seems to be necessary also to avoid confusion. Rural sociologists are just as much intrigued by symptoms of decay in the rural sphere as are agricultural economists. They too are seriously engaged in an analysis of farm tenancy as one institution of occupancy that allows separation of property from management and operation. Our sociologist-colleagues have discovered also that innumerable factors [see Otis Durant Duncan, "A Sociological Approach to Farm Tenancy Research," *Rural Sociology*, V. 3, September 1940, pp. 285-291] are responsible for the conditions prevailing in rural society with various degrees and forms of farm tenancy.

The subject is certainly wide enough for much more research by various branches of the social sciences. This attack from many angles will probably yield more material and a more thorough revelation of untenable assumptions. Yet, if we accept the assumption of both speakers that farm tenancy research has the duty to lay the foundation for policies of tenancy reform, and if we agree that the immensely involved subject of tenancy offers unusual difficulties for adequate research attack, then it seems a dictate of strategy as well as economy to unite all available resources for co-ordination and division of labor. Agricultural economists, lawyers, and rural sociologists should get together in conferences to orient and plan further research. Such conferences should be sufficiently removed from the sphere of pressure and urgency that legitimately surrounds active administrators and legislators. To achieve something these research conferences would require much effort in preparation, careful selection of participants and competent chairmanship.

As to the factual research on existing conditions, a slight variation from Mr. Kelso's suggestion may be worth considering. Since our judgment is invariably based on comparison, comparative studies of large areas with obviously smooth and satisfactory performance of farm tenancy, and of

other areas with obviously defective performance should be undertaken. Such projects should comprise, according to Mr. Kelso's proposal, the other forms of land tenure as well as tenancy.

To tackle broad comparative studies of areas leads to innumerable methodological difficulties which again would require the pooling of experience, knowledge, and resources. Research conferences could probably go a long distance toward solutions.

Dr. Kelso has stated that "a satisfactory description and classification of the subject matter to be studied is the essential first step in any research endeavor." And later on, "An adequate description and classification of tenure forms and their combinations requires probably more insight and imagination than is required for their analysis and appraisal."

I wonder whether this really faces the issue involved. It has always been to me one of the most intriguing dilemmas that in order to describe and assemble the facts, you must pose the right questions, while in order to have the inspiration or imagination for the most pertinent questions, you must have analyzed or anticipated results of analysis. This almost suggests an imitation of a cat chasing its tail.

We try to overcome this deadlock by combining empirically both processes. After some initial reconnoitering we begin to collect some partial material, then analyze it, enlarge the questionable area, attack in detail, revise our tactics, enlarge the area of uncertainty and again concentrate on more detail.

With comprehensive studies of complex symbiotic organic processes we are in constant danger of being overwhelmed and overpowered by too much material and too many facts. Hence it is a matter of serious consideration to develop certain strategies which are partly a proposition for conference and consultation, and partly one for individual pioneering.

The remarkable progress made in Iowa by Dr. Schultz, Dr. Schickele, and their associates in years of well-planned investigations, is a good example of co-operative effort. Dr. Schultz's article on capital rationing, uncertainty, and farm tenancy mentioned by both speakers opens entirely new perspectives for tenancy reform and casts serious doubts on many well-meant short-cut suggestions for solutions. A majority of the early assumptions that started the investigation have been disposed of as a result of findings.

Though there seems to be general agreement that the main part of research on tenancy still remains to be done, it should be a real consolation that in two or three generations of painful struggle and toil some other nations have found workable and sound solutions for tenancy reform. In England today farm tenancy functions at least as well as owner operation, and in many instances, better. More research should be devoted to foreign farm tenancy reform, and thorough familiarity with at least the English farm tenancy legislation and the administrative side of tenancy reform ought to be a prerequisite for all those who engage in tenancy research.

Farm tenancy reform is definitely something that defies any attempt at quick solution by political pressure or energetic administrative drives. It

requires patient, tenacious study and maturing of knowledge and thought by co-operative accumulative effort. It takes decades rather than a few years. If so much study is involved, research efforts should be intensified. Mr. Ackerman's and Mr. Kelso's papers both bear convincing testimony that this is appreciated in 1940. This represents a long step from the view implied in governmental and public expectations of only a few years back. This recognition, with its connotation of modesty so well becoming true research, is the greatest progress that could possibly have been made.

APPLICATION AND USES OF THE GRAPHIC METHOD OF MULTIPLE CORRELATION

H. R. WELLMAN
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The meat of this round table comes later with the two excellent papers by Professor Waite and Dr. Girshick. My remarks constitute merely the introductory course, and as such should neither be heavy nor long. There are also two other reasons for being brief. The first is that one cannot discuss the application and uses of the graphic method for many minutes without danger of encroaching upon Professor Waite's topic, "The Place of and Limitations to the Graphic Method." The second reason is that we ought to save considerable time for a "free-for-all" discussion following the formal papers.

The topic assigned to me may conveniently be discussed under three headings which we may state in the form of questions as follows:

1. To what extent have research workers in agricultural economics actually made use of the graphic method of multiple correlation?
2. On what kinds of problems have they used it?
3. In what ways have they used it?

In order to answer these questions from a background broader than my own personal knowledge, I wrote to a number of persons in various state agricultural experiment stations and similar institutions. Their replies provided me with much of what I shall have to say, and I very much appreciate their courtesy. In conformity with usual practice I hereby relieve them of responsibility for any errors in this paper.

With regard to the first question, the outstanding fact revealed by the replies to my inquiry is the wide variation among institutions in the extent to which they have used the graphic method. Some institutions reported that they have not used it at all, others said that they used it occasionally, while still others reported that they made considerable use of it. The differences between institutions appear to relate in part to the kinds of work undertaken and in part to the personal preferences of the individual worker.

In numerous studies, multiple correlation analysis is not, of course, applicable; and where an institution is working largely on such studies it is obvious that there would be little occasion to use either the graphic or the mathematical method. But differences in the kind of work undertaken do not explain all of the variation

between institutions in the extent to which the graphic method is employed. Here are quotations from two letters: (1) "We have made considerable use of mathematical correlation in our research work in agricultural economics, but we have not thus far made any use of the graphic method." (2) "In recent years we have used this method almost to the exclusion of the more formal mathematical correlation approach."

The extent to which the graphic method has been used is by no means revealed fully by published studies. While the number of illustrations of graphic analyses found in the literature on agricultural economics is fairly impressive, yet this number constitutes only a small portion of the total number of analyses which have been made. In the preparation of the Federal Agricultural Outlook Reports, for example, many graphic analyses have been made, yet relatively few of them have appeared even in the outlook charts. From 1929 to 1937 inclusive the College of Agriculture of the University of California issued an annual outlook report. Although much of the appraisal particularly with respect to specialty crops was based upon analyses made by the graphic method, not a single graphic analysis as such appears in any of the reports. In connection with the several governmental action programs relating to agriculture, numerous graphic analyses have been prepared as a guide in administrative decisions, but almost none of them has been published.

Dr. Harold B. Rowe stated that the graphic method was used extensively in the Brookings Institution studies of the Agricultural Administration, particularly in connection with the appraisal of the benefits and burdens arising out of the programs, yet no graphic multiple correlation analysis appears in any of those studies.

Dr. Holbrook Working of the Food Research Institute, Stanford University, wrote that while he has used the graphic method quite freely in the course of his investigations, he has never published a graphic multiple correlation analysis as such.

The second question relates to the kinds of problems on which the graphic method has been used. Here again there is much diversity. The most extensive use has been in the field which we commonly call "price analysis." Two typical illustrations are contained in the study on "Stabilizing Corn Supplies by Storage" by Geoffrey Shepherd and Walter W. Wilcox.¹ One relates to factors determining hog prices, the other to factors determining corn prices. The graphic method has also been used to a considerable extent in the study of changes in the acreage of crops and the numbers of live-

¹ Iowa State College Agr. Exp. Sta. Bul. 368. 1937.

stock. One of the most comprehensive of the latter type of study which has come to my attention is that by Oris V. Wells, entitled "Farmers' Response to Price in Hog Production and Marketing."² At Kansas, Professor Hodges reports that they have used the graphic method extensively in the study of the relations between crop yields and weather data.³

So far as I have been able to learn there has been relatively little use of the graphic method of multiple correlation in such fields as farm management, market organization, and land economics. At one time considerable use was made of the method of successive approximations developed by Ezekiel⁴ in studying the relation between physical inputs and outputs, and in studying the relation of farm organization to farm income. That method involves as you know the free-hand fitting of curvilinear relations and may, I suppose, be considered as a forerunner of the "Bean Method." I am not sufficiently familiar with the literature in farm management to be able to state definitely the extent to which multiple correlation in general has been used in that field in recent years, but my impression is that it has been relatively limited.

In looking over a considerable number of reports in which the graphic method was employed, I was struck by three characteristics which they had in common: (1) the number of observations was small; (2) the correlation secured was high; and (3) in most instances time-series data were employed. The first of these is readily explained, but what about the other two? Is there something in the method itself which produces high correlations? Is the method applicable only when the correlation is high? Or are only those analyses which give high correlations published? Why is it that the graphic method has been applied more to time series than to frequency series? Are there more problems which need investigation in the one case than in the other? Are data more readily available for time than for frequency series? Is there more need for careful scrutiny of individual observations in time series? Or is it mainly a matter of the fewness of observations in most time series? Now I don't propose to attempt to answer these questions; I merely raise them.

Coming now to the last of the three questions posed at the beginning of this paper, the graphic method seems to have been used by most practitioners in one or both of two ways; as an exploratory

² United States Department of Agriculture Tech. Bul. 359. April 1933.

³ Homer J. Henney, Forecasting the yield of winter wheat seven months prior to harvest. *JOURNAL FARM ECONOMICS* 14 (2), April 1932.

⁴ Mordecai Ezekiel, A method of handling curvilinear correlation for any number of variables. *Jour. Am. Stat. Assn.* 19: 431-453. N.S. X10 148. December, 1924.

device and as a substitute for the mathematical method. Nearly everyone who reported having used the method at all said that he used it in the preliminary stages of an analysis as a means of uncovering relationships between variables, while some reported that they also used it as a basis for measuring relationships. The following statements are typical:

(1) "We have not made much use of the graphic method in any of the final publications of this division for some years. In the preliminary exploration of a problem, however, we . . . use it constantly."

(2) "In general I have been inclined to use the graphic method for all preliminary and reconnaissance work, although in some instances I have employed the more formal methods as a basis for the final statement of conclusions."

(3) "At first my use of the graphic methods of multiple correlations in research was deliberately confined to exploration in preliminary analyses. Having found the variables that appeared to deserve inclusion in a multiple regression equation and the general form of the relationships, I preferred to check the results by numerical computation and to use only the latter in published work . . . I have since come to feel quite free to use the results of graphic multiple correlation analysis in published work wherever the situation warrants."

In my own work I have used the graphic method both as an exploratory device and as a substitute for mathematical correlation. Since the publication of Bean's development of this method⁵ I cannot recall having run a single mathematical multiple correlation analysis without first having made a graphic analysis. On the other hand, I have made numerous graphic analyses without later subjecting them to mathematical treatment. In much of my past work I have based conclusions upon the graphic analyses themselves. But in recent years I have tended to resort more to mathematical correlation in the final stages of the analysis. Whether or not I shall continue this practice I frankly do not know.

Returning now to the use of the graphic method as an exploratory device, there are several points which I should like to mention briefly. In price analysis—and I refer to it because much of my work has been in that field—careful consideration of the economic nature of the relations between variables in light of the characteristics of the particular commodity and its market still leaves us usually with a rather wide range within which to choose the variables to be included and the types of functions to be fitted.

⁵ L. H. Bean, Applications of a simplified method of graphic curvilinear correlation. U. S. Dept. Agr. Bur. Agr. Econ. April 1929. (Mimeo.)

We desire, of course, that the cause-and-effect system be a closed one; or at least that none of the important price-determining forces have been omitted. Even if we were able to list in advance the precise factors which were present during each interval of time, it is not likely that we could use all of them in the correlation analysis. In the first place we may not have quantitative measurement of some of the factors believed to be important, and in the second place probably only a few of the factors capable of being expressed in quantitative terms can actually be used in any one correlation analysis, since as a rule the number of observations is small. In most price analyses which I have made, I have been faced with the problem of choosing three or four independent variables from among the five or six which appeared to be pertinent.

In addition to choosing the particular variables to be included, we also have the problem of selecting the types of functions to be fitted. Here again qualitative analysis is helpful in narrowing the range of permissible types, but it seldom provides us with the precise forms of functions which express the underlying relations between variables, if such exist. In most cases there are a number of different forms of functions each of which is equally plausible on *a priori* grounds.

I have found the graphic method to be particularly useful in testing with minimum effort the several combinations of variables and the different forms of functions all of which appeared to me to be equally appropriate on the basis of such knowledge as I had concerning economic relations, the characteristics of the commodity, and the nature of its market.

Closely related to the problem of choosing between acceptable variables and between suitable functions is that of simplifying a complex problem by separating it into two or more parts. Dr. Holbrook Working states, "I have found that a complex (multi-variable) problem could often be broken down into several rather simple problems (each involving only one or two independent variables); and where such was the case, I have felt that the reliability of the conclusions was improved. Such a breakdown . . . usually permits bringing additional information to bear on the problem, and usually decreases the risk of getting spurious results arising from chance correlations."

Two other aspects should be mentioned: one relates to the presentation of a multiple correlation in graphic form even when derived mathematically; the other to the use of the graphic method in teaching multiple correlation analysis. I do not want to take time to discuss these now. I merely call them to your attention. A graphic representation of the multiple regression equation fitted by

the method of least squares not only facilitates understanding by the reader but also provides the investigator himself with a clearer picture of the results actually obtained. This is particularly true when the individual observations are important as they are in most price analyses. In teaching multiple correlation analysis to graduate students, which I have done for a number of years, I have found that few of them really understand the results secured with the mathematical method until after they have worked a number of problems with the graphic method.

In Summary

(1) The graphic method is not used universally by research workers in connection with problems involving multiple correlation analysis. It is employed extensively by some, but little or not at all by others.

(2) To date it has been used most widely in analyses of factors influencing prices and consumption. Probably the second widest use has been in studies relating to changes in acreage of crops and number of livestock.

(3) The graphic method is used both as an aid in choosing variables and types of functions prior to mathematical treatment and as a substitute for mathematical correlation.

PLACE OF, AND LIMITATIONS TO THE METHOD

WARREN C. WAITE

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The controversy that has raged over the graphic multiple correlation analysis is well known. Its violence attests to the great divergence in opinions regarding the place and the effectiveness of the method. Although widely used in agricultural economics it seems to have been little used by workers in many other fields. The opinion which some hold regarding the method seems also to be much colored by their mathematical background. One finds in general that the great majority of those with a strong background in mathematics, say an undergraduate major or a Ph.D. minor, consider the method as primarily a subjective hokus pokus. On the other hand those without a strong mathematical background are much impressed with the method. It is simple, involves a minimum of computation and appears to give results with the least possible expenditure of energy. Both sides then are prone to exaggeration in the defense of their position.

At the outset it may be well to recall the usual classification of the purposes of statistics. These purposes are twofold. The first is the use of statistics as a descriptive device to characterize in short-hand fashion a mass of data involving a set of relationships which we can not readily grasp simply by examining the individual cases. The second is to provide a device for inferring to other situations from the data which we have at hand. The first is whatever it turns out to be, the results are simply those which we secure. The second is more treacherous and may put us on extremely dangerous ground. We now try to form an opinion of what our results mean in terms of new situations which we have not as yet examined. Here we are involved in probabilities and tests of significance. We need to be sure of our hypotheses that are to be tested and how valid these hypotheses may be for the problem which we are examining.

As a descriptive device the method has much to recommend it. The work is carried out quickly and with comparative ease. This enables one to reconnoiter a wide territory at a rapid rate. Relationships are tested and a field covered that would be closed to the more laborious mathematical method. The method also possesses the advantage of great adaptability. The rigid assumption of straight line relationships is easily overcome. This is important since we are all well aware that straight line relationships among economic data are rare. Curvilinear relationships impose heavy burdens in computation when the least squares procedure is followed, especially

if the general characteristics of the sought curves are not known in advance. There is also an additional advantage in that subjective allowance is possible for differences in the quality of observations. This may be extremely important in economic data where we know that the magnitude of some observation is influenced by a special and unique and probably non-recurring force at a particular time or place. All observations become simply numerical values in our mathematical computations, but we may if we know enough about them incorporate this knowledge in our analysis using the graphic method. As an explorative and descriptive device the graphic method is entitled to a high place among the statistical tools and in agricultural economics we would be foolish indeed if we were not to use it as such.

The chief difficulties begin when we seek to draw inferences from our data. Here especially in economics we are in an extremely dubious position. We need to be careful that we do not overemphasize the degree to which we deal with a science in economics simply because we have placed our data in a numerical form. I take it for granted that precise forecast is possible only in a science. The real truth of the matter is that economics at present is essentially an art rather than a science and that all forecasts are of limited validity. It is only necessary to review some of the characteristics essential for a science in order to see how far the data and field in which we work diverge from these requirements. The first requirement is that of consistent classifications. When a name or designation is given to a thing or datum it must always be identical for all practical purposes with other things given the same name. Yet no two persons are the same, or even does the same person necessarily react in the same way at different times in actual life. We have very few facts in the strict scientific sense with which to begin. A second requirement is that these categories of facts must be of manageable number. It does little good to name categories if they are nearly as numerous as the items in existence. Broad categories embracing large numbers of items are essential if the generalizations from them are to be useful. But consider for a moment the few categories we are able to comprehend at a time in a problem in economics. Even then for many problems the economic facts, such as they are, form only a small part of the necessary data of the problem. A forecast of the price of wheat for the coming year surely depends as much upon the trends in the war as upon any past relationship between supplies and price. We need not only the facts that fall within the field of economics but many others in order to make a competent forecast. The third requirement is that of consistent interrelationships of the facts constituting the various categories. It is only too

obvious that we have few consistent relationships in economics. Environmental changes produce different reactions in persons and markets so that the same stimuli produce changing reactions. It is not necessary to parade the failures in price forecasting here but the number of correlations that have carried over successfully more than two years are surprisingly few. Finally the results of science must be communicative so that others may by the description of categories and their relations be able to utilize these results without passing through the identical experiences of the first investigator. We thus find ourselves in a precarious situation in which to carry out a statistical analysis. The results of any analysis can be no better than the basic data with which it begins. No mathematical procedure however complicated it may be, can make it better. The plain truth is that our data are not true data in the scientific sense and no method, least squares or graphic, can avoid this difficulty. This means that any method of correlation applied to economic data is open to suspicion and its application violates assumptions that are inherent in the procedure. We will all continue to make these analyses but certainly we must avoid being misled as to their meaning.

With these considerations in mind let us examine some specific limitations of the graphic method itself. These are twofold: the first is that the very excellence of the apparent results often lulls the investigator into believing that his analysis is far more secure than it actually is; the second is in the ease with which the method may be abused by the incautious worker. No one supposes that all workers step into these pitfalls, but they certainly exist and users of the method must constantly be on their guard to avoid them. In competent hands and used in the way in which the advocates of the method have proposed its use, the method itself is in a nearly unassailable position. The difficulties lie in the users of the method, but the misuses are so closely connected with the method that they can hardly be treated as a thing apart. It is here that we come to a wide difference of opinion, some holding that the misuses largely invalidate the method while others hold them of minor consequence. This is a question which can never be precisely or mathematically answered.

It seems at first a strange objection to say that the good fit provided by the graphic method is a limitation. Certainly if one is concerned with a description of past events or of a particular sample then the better the description provided by our statistics the better satisfied we are. But this does not hold true when we use our data for purposes of inference. It is well known, of course, that samples drawn from a known population in which there is no correlation,

will exhibit sizable correlations in many of the samples. The distributions of these correlation coefficients have been established for samples of various sizes, and also for samples drawn from populations with different underlying correlations. One is then able to state the probability of correlations of a certain size arising from chance. There are at present no known distributions of such a character for graphic correlations, and one may well question whether they can ever be set up precisely, although we may approach them by empirical analysis. There can be little question but that the flexibility offered by the curved regression lines used in the graphic procedures results in higher values of correlation coefficients than the ordinary Pearsonian method. My own impression is that the differences are quite large. Some simple experiments running both sorts of correlations on sets of ten paired observations drawn at random, say the last digits of telephone numbers, is sufficient to indicate how important these possible differences are. The difficulty is that in securing such a result one can not tell whether it arises from a better fit to a set of random uncorrelated or slightly correlated observations, or because the flexibility of the method gives a better approximation of the underlying universe. There have been regression lines used in some graphic correlations even by supposedly competent investigators which can not be substantiated by any sort of economic reasoning.

It will at once be urged that this bias may be corrected by taking into appropriate consideration the number of variables and the probable number of parameters involved in the regression equation. We do not know as yet what the proper corrections should be, and even if the correction is correctly made our results are of a dubious value. In fact this correction may have a particularly vicious aspect when used in the graphic procedure in view of the interpretation which I think some investigators place upon it. This is the interpretation that the corrected rho represents the true correlation in the universe, when in fact it is only a somewhat more probable value of that correlation. As we have said, the distribution of correlation coefficients of samples drawn from a known universe with a given correlation show a large variation from the true correlation of the universe in the correlation found in the samples. Moreover, when the samples are small and the correlation in the parent population is of any magnitude the distribution of the correlations from the samples are badly skewed with the modal correlation of the samples as well as the average correlation exceeding the true correlation of the supply. What this correction does is to lower the correlation found in the sample and to increase the probability that if we have been fortunate in our sample we are closer to the true correlation of

the universe. The corrected correlations still have a considerable range of values and we may still misrepresent the universe badly. We must, therefore, avoid the implication that our correction has given us the true correlation of the universe.

One of the big advantages of the more mechanical mathematical method of correlation procedure is the forcing upon the investigator of an hypothesis which may be tested in terms of some theory of probability. This testing usually results in astounding the investigator on the narrow foundation on which his conclusions rest and leads to caution in the statement of his results. It is this phase which I believe irritates the mathematician in the use of the graphic method as much as anything else. He is brought by his mathematical procedures to see how large the element of randomness in his results may be. He knows that even these carefully fitted lines have large possible elements of error. In the graphic method he thinks he observes workers blissfully glancing at a scatter diagram and then with great confidence drawing in any regression lines that appear to them desirable. It may reasonably be said that use of the graphic method necessitates unusual caution in interpretation by the investigator and that often unfortunately this has not always been observed.

The method may also be considered against other criteria, namely how the results compare with those secured by the ordinary least squares procedure or how far the results are consistent when various investigators have used the same sets of data. This is a question of the shape and slope of the net regression lines. The modern practice began when drift lines and successive approximations were added to the general procedure. When these two devices are used as the developers of the method have advocated and straight lines drawn then the results will tend to approximate the least squares results except for the tendency toward a visual minimization of actual deviations rather than squared deviations. The real question is, however, whether the method is in fact so used. This is again a matter of subjective judgment. There are many problems in which the position of the drift lines has not clearly indicated where the net regressions should be drawn and in these cases one tends to follow the drift of the data with the result that a line approaching a gross regression line is drawn. If such is the case then there is a strong tendency to appropriate to the first variable considered on the graphs the major degree of influence of the two intercorrelated independent variables. One regression line then has too great a slope and the other insufficient slope. The process of successive approximation is to be followed to correct these slopes. But if the intercorrelation between the independents is large the

rate at which the true slopes are approached rapidly becomes negligible and the investigator is apt to stop with incorrect regression lines. The extent to which this takes place can not well be proven or demonstrated and each investigator must decide for himself how important the differences are likely to be. It is, however, a real possibility in the use of the method and one which each user needs to keep in mind as something to be avoided.

A reasonable requirement of any method is that of constancy of results. The results obtained by different investigators using the same sets of data should be consistent as well as those of the same investigator in working the problem at some other time. The method as ordinarily used necessarily involves a large degree of subjective judgment and there are almost certain to be some differences in results. We all have seen lines, even in published studies, that we would not accept either because of peculiar shapes or some other reason offending our sense of propriety.

The method of graphic correlation is evidently a useful tool of analysis. Its great contribution is the avoidance of much of the drudgery connected with certain forms of research. It permits one to cover a wide range of ground and reach tentative conclusions regarding the nature of a particular problem. But at the same time it is a treacherous tool and we must be constantly alert to avoid its shortcomings. One of these is the possibility of leading us to suppose that we are closer to the underlying relationships among our data than is actually the case, because of a goodness of fit arising from largely fortuitous circumstances. Another is the possibility that we may have incorrectly divided the influence between our independent variables. To blindly accept the method without a recognition of these shortcomings would be unfortunate indeed.

NOTES ON THE DISCUSSION OF THE GRAPHIC METHOD OF CORRELATION ANALYSIS

In the discussion that followed, Geoffrey Shepherd recommended that research workers use both methods rather than either one alone. The speed with which the graphic method reveals the characteristics of the regressions makes it invaluable as an exploratory tool. The curvature of the regressions thus revealed can then be represented mathematically and the correlation analysis carried through by the mathematical method, so as to enable the worker to express his results in numerical as well as graphic form. Both the graphic and the mathematical results should then be published together.

Mordecai Ezekiel pointed out that although the graphic method of multiple correlation may yield varying regressions when there is marked intercorrelation between independent variables, under the same circum-

stances the errors of mathematically determined regression lines will be similarly large. In this case, such an error is evidenced only when the standard errors of the regression coefficients or the "error envelopes" about each regression line are computed.

Don Anderson objected to the use of the graphic method as an exploratory tool if that meant merely exploring the relationships of a number of variables and selecting only those that showed a high correlation with the dependent variable; fairly high coefficients could be obtained by applying this procedure to a number of purely random series, such as numbers out of a telephone directory, as Waite had pointed out. Waite replied that that was not what he meant by the word exploratory; he meant exploring the slope and curvature of the regressions of factors expected on general economic grounds to have a direct relationship to the dependent variable—corn production, for instance, if the independent variable were corn prices. He recommended that in future the word "exploratory" be replaced by the word "preliminary." The meeting then closed with the chairman's remarks that the graphic and mathematical methods had been proved equally respectable, and that future discussions should deal with the problems that are common to both.

E. J. WORKING, *chairman*
GEOFFREY SHEPHERD

PROBLEMS OF GRADUATE STUDENTS IN RURAL SOCIAL SCIENCES

THE STUDENT COMMITTEE

A new feature of the annual meetings of the American Farm Economic Association this year was a session devoted to the problems of graduate students in rural social sciences. At the suggestion of graduate students from different sections of the country, this meeting was set up for an open discussion of problems which the students themselves had already considered at their own institutions. A large group of graduate students, professors, and administrators met together, with Dr. H. C. Taylor of the Farm Foundation presiding as chairman, and discussed numerous questions which were presented from the floor.

The problems that arose were quite varied in nature, but most of the discussion period was spent on those dealing with questions of provincialism, scope of training, and publications.

The question of lack of agreement among the various departments of agricultural economics with regard to the kind of background that is desirable for a graduate student and the type of graduate training that should be offered provoked an interesting discussion. The opinion of the group seemed to indicate that the separate schools should preserve their individuality; improvements, however, should be made in the means whereby graduate students might take work in the field of their special interest at institutions other than that from which they expect to get the Ph. D. degree. Suggestions along this line included the desirability of exchange fellowships and assistantships between universities and of more cooperation among the various universities in arranging for the transfer of credits. The view was expressed that a lack of planning ahead on the part of the graduate student was primarily responsible for his not being able to take work at several different colleges without losing time and credit in the process. This failure to plan ahead appeared, in turn, to rest largely on the lack of guidance from the departmental staff members in the early stages of graduate training (or perhaps even in the student's undergraduate days) and in the difficulties and uncertainties which students experience in trying to make plans very far in the future.

The question of the possible "inbreeding" of ideas at various institutions because of the development of certain philosophies and sets of ideas was raised. The dangers of too much "inbreeding" were generally recognized, but it was pointed out that complete

standardization of the various schools in the country was not to be desired. It was agreed that the different schools should maintain and develop their individualities without getting narrow-minded and without failing to appreciate the value of the strong points in the work developed in other institutions.

Some discussion followed concerning the responsibility of the institution to the graduate assistant on the one hand, and the responsibility of the assistant to the institution on the other. It was pointed out that frequently an assistant is assigned to a research project and kept on it during his entire tenure as a graduate student, simply because it would disrupt the research program of the department to switch him to a new assignment. Objections were voiced concerning the extensive use of graduate students in routine and clerical work offering little or no opportunity for scholastic improvement. Someone even went so far as to ask if graduate assistantships were intended as a means of subsidizing graduate work or as a method departments used to get work done cheaply. It seemed to be generally agreed that neither the interests of the student nor the work of the institution would need to be sacrificed if there were sufficient planning done in advance by the parties concerned. In other words, the program for assistants can be worked out so that there will be mutual gains.

With respect to the scope of training deemed desirable in the field of agricultural economics, first consideration was given to the problem of specialization versus diversification. It was pointed out that those who specialize too much find themselves severely handicapped if they are not fortunate enough to find satisfactory employment directly in line with the field of specialization. In addition to specialized work, there are basic studies which should be pursued and which would serve as tools in any one of a number of specialized fields at a later date. It was generally felt that the student's first interest should be that of acquiring mastery of these tools, such as mathematics, statistics, economic history and geography, research technique, logic, and philosophy, which will lend themselves to a wide variety of uses. Difficulties in getting the beginning graduate students to see these needs were indicated and it was suggested that a more extensive use of the problem method be made in teaching such subjects. In contrast with extreme specialization, which was not considered advisable, it was pointed out that there was a danger in pursuing the use of "tools" to the finest detail and losing sight of their practical applications.

The problem of scope of training brought up the perennial question relating to the present language requirements for advanced

degrees in the field of agricultural economics. The real need of foreign languages for work in agricultural economics was questioned, as was the utility of such acquaintance with foreign languages as is commonly required in order to pass the prescribed examinations. A show of hands among those present, including both faculty and graduate students, indicated that only a few recognized a need for the required foreign languages. Furthermore, only a small percentage of those present claimed to have achieved a really useful degree of proficiency in the use of the required foreign languages.

Suggested alternatives to the present requirement of a reading knowledge of German and French were (1) a thorough speaking and reading knowledge of a single foreign language and (2) a mastery of mathematics through the calculus. It was acknowledged that the group present was not in a position to do anything about changing these requirements. In fact, it was suggested that since these requirements do exist, an honest effort should be made to put languages to a practical use. Professors might well take the lead in this direction by pointing out valuable original sources that are available only in German or in French, assigning these readings, and in this way making the language requirements something more than a mere hurdle to be cleared before one can acquire a higher degree.

Under the general topic of publications it was asked whether or not it would be desirable for the JOURNAL to include abstracts of all completed Ph. D. theses in the field of agricultural economics. It was indicated that such a policy would serve two purposes: (1) to give publicity to the research itself, and (2) to introduce the student to other workers in the field. It was the consensus of opinion that publication of brief paragraphs concerning research work in progress and work completed was desirable. Further, it was indicated that all Ph. D. theses should be of such quality and scope as to merit publication as major articles in the JOURNAL.

Another question was raised concerning the authorship of publications based on or taken from theses—particularly Ph. D. theses. It was asked whether the student himself should be given sole authorship of the publication, whether it should be published jointly by the student and the major professor, or solely by the professor. No specific answers to the question were found. Certain individuals said that, in most instances, the student should be given sole authorship. Others suggested that the name of the adviser should be included in the capacity of co-author, with an explanation in a footnote of the participation of each contributor.

A number of other questions and topics were suggested for discussion by the graduate students, but lack of time prevented their being presented to the entire group for consideration. The following questions are representative:

1. Should there not be uniformity among institutions in respect to the policy of answering applications for fellowships and assistantships? Most endowed institutions answer all applications on May first.

2. Some professional associations make a practice of carrying in their journals announcements of vacancies in assistantships and similar positions that occur throughout the country, as well as qualifications of candidates who are interested in such openings. Would this not be a desirable practice for the American Farm Economic Association to adopt?

3. It has been suggested that a man in agricultural economics needs training in a variety of subjects in addition to his training in his specific fields. Does this mean that the period of graduate study should be lengthened?

4. Just how much emphasis should be placed on work on one's thesis, particularly the Master's degree thesis?

5. Can anything be done with regard to the attitude of professors who feel that teaching is just something to be endured and something that interferes with their more important work—research, for instance?

6. What might one who has grown up on a farm, attended a rural school, graduated from a college of agriculture, and majored in agricultural economics do to develop the social point of view rather than that of a special interest group?

Although few, if any, problems were threshed out to a definite conclusion in the discussion, a great deal of light was shed on many questions, particularly those in the minds of many of the graduate students. Group discussions after the sessions indicated that consideration of many questions that did not come out in the open during the meeting was stimulated. The wholesome and friendly spirit of the administrators and teachers who participated in the discussion especially impressed the graduate group, and it seemed unanimous that the holding of such democratic discussion periods as this could profitably be encouraged as a part of future meetings of the American Farm Economic Association.

On behalf of the graduate students who took part in this year's session, the committee wishes to thank the Association for scheduling the meeting and the administrators and professors for participating in it, and particularly to indicate their appreciation to Dr.

H. C. Taylor and Dr. H. B. Price for their part in conducting and promoting the period devoted to the discussion of problems of graduate students.

The Student Committee

R. M. Grigsby, Louisiana State University

W. C. Binkley, University of Kentucky

E. R. Clover, Texas Agricultural and
Mechanical College

C. M. Hardin, Purdue University

E. C. Hedlund, University of Illinois

E. P. Heiby, Ohio State University

D. G. Miley, Virginia Polytechnic Institute

QUALITY-PRICE DIFFERENTIALS IN COTTON MARKETING

L. D. HOWELL

Bureau of Agricultural Economics

One important phase of the problem of improving the marketing of cotton relates to the functioning of the market mechanism with respect to quality-price relationships, particularly in farmers' local markets. These relationships have an important bearing on the problems of making needed adjustments in the quality of cotton produced and of increasing outlets for American cotton. Improvements in the market mechanism so that prices to growers will reflect at least fairly accurately the quality of the cotton sold would encourage needed adjustments in quality produced, and such adjustments would tend to strengthen the position of American cotton in competition with cotton of other growths and with other fibers that compete with cotton.

Quality and Standards

An understanding of the meaning and measures of cotton quality is helpful in considering quality-price relationships. The term "quality" as used in this paper refers to all the physical properties of cotton that affect its usefulness. Differences in quality are indicated by growth or variety and by the grade, staple length, and character of cotton of the same variety or growth. Cottons produced in the various countries show considerable differences in quality. Most of the cotton produced in Egypt and Peru, for example, has fine fibers stapling $1\frac{1}{8}$ inches and longer, whereas most of that produced in India and China has coarse fibers stapling shorter than $\frac{7}{8}$ of an inch. The staple length of cotton produced in the Soviet Union and in Brazil is about the same as to somewhat longer than the bulk of American Upland produced in the United States.

Differences in quality of American Upland cotton are indicated by grade, staple length, and character.¹ Grade is composed of three factors—color, foreign matter, and ginning preparation. Grade is influenced largely by weather conditions prior to and during harvesting, time of and care in harvesting, conditions of the cotton at the time of ginning, kind and condition of ginning equipment used and methods of its operation. The usefulness of cotton in the manufacture of yarns and fabrics and the quality of the finished products

¹ United States B. A. E., The classification of cotton, U. S. Dept. Agr. Misc. Pub. 310, 54 pp., illus. 1938.

vary considerably with its grade. Spinning tests show, for example, that the quantity of waste removed from the lint by pickers and cards varies on the average from about 6 per cent for Strict Good Middling to 15 per cent for Good Ordinary. In addition, manufacturing costs, other than raw materials, tend to be reduced and the quality of the finished products tends to be improved by the use of the higher instead of the lower grades.

Staple length of cotton means the normal length by measurement of a typical portion of its fibers and is influenced largely by variety and by the conditions under which the cotton is grown and ginned. Length of staple is important in connection with the strength and fineness of yarns that can be produced and with the cost of manufacturing. The longer stapled cottons generally are considered to be essential for spinning fine yarns and yarns having high strength requirements, but they may be used also in manufacturing medium and coarse yarns, whereas short staples are used mainly in the production of coarse yarns. Ordinarily, yarns of a given specification can be manufactured from cotton representing a considerable range in length of staple, but the use of the longer instead of the shorter staples tends to reduce the other costs of manufacturing and to increase the costs of raw cotton.

Character of cotton includes all elements of quality not included in grade and length of staple, such as fineness of fibers, strength of fibers, uniformity and other fiber properties. Although it is recognized generally that the character of cotton may materially affect its spinning utility, much remains to be learned about the quality elements grouped under the term "character," and the relative importance of the individual fiber properties and various combinations of them in terms of major use values. Information that has become available recently indicates that fineness of fibers is one of the important elements of cotton quality.

Official standards for grade and staple length have been established and are in general use. Available information indicates that most of the cotton purchased in central and mill markets are described for grade and staple length in terms of the official standards, but up until recent years most of the growers disposed of their cotton in local markets without knowing its grade or staple length and most of the crop was purchased by local buyers who neither own nor have access to the official standards.² Cotton classification services have been expanded markedly in recent years, however, and during the 1940-41 season free classifications furnished farmers

² Wright, J. W. Use of the official cotton standards of the United States. (Preliminary Report) U. S. Dept. Agr. 22 pp., illus. 1934. (mimeo.)

in organized groups will total about 1.5 million bales.³ But it is not known to what extent growers make use of this information in selling their cotton.

Although the quality elements included under the term character generally are recognized to be of great importance in determining the spinning utility of cotton, official standards for measuring these quality elements have not been established, and the lack of standards for these elements of quality obviously limit the ability to vary prices on the basis of quality. Specifications for character are made, in buying and selling cotton, by means of private type, by designating normal character as represented by the official standards for length of staple, by descriptive terms, or by locality of growth.

Variations in Prices with Quality

Differences in the quality of cotton are reflected in substantial differences in prices, particularly in central and mill markets. During the season 1939-40, for example, Liverpool prices for representative qualities of the various growths, when expressed as proportions of the price of American Middling $\frac{7}{8}$ inch averaged about 78 per cent for Indian Oomra No. 1 Fine, about 99 per cent for Brazilian Sao Paulo Fair, and about 124 per cent for Egyptian Uppers Fully Good Fair. These cottons differ considerably in length of staple, as already indicated, but it is not known to what extent these differences in prices were affected also by quality elements other than length of staple.

Prices also vary considerably on the basis of differences in the quality of cotton of the same growths as indicated by grade, staple length, and character. During the season 1939-40, prices quoted in the 10 designated American markets for other grades of $\frac{7}{8}$ -inch cotton, when expressed as proportions of the price of Middling $\frac{7}{8}$ -inch, varied on the average from about 77 per cent for Good Ordinary to about 105 per cent for Middling Fair. During the same period, central market prices for the various staple lengths of Middling grade, when expressed as proportions of the price of Middling $\frac{7}{8}$ varied, on the average, from about 93 per cent for 13/16-inch to 150 per cent for $1\frac{1}{4}$ inches. Differences for grade and staple length combined varied from about 69 per cent for Good Ordinary 13/16-inch to about 163 per cent for Middling Fair $1\frac{1}{4}$ -inch cotton. If standards for character were available and differences in these quality elements were also taken into account, variations in prices, on the basis of quality might be increased substantially.

³ In addition classification on a fee basis for loan purposes will total about 3 million bales.

But in farmers' local markets, differences in prices on the basis of quality, particularly on an individual bale basis, are in most instances much less than those quoted in central markets. Quality-price relationships in farmers' local markets may well be considered from the points of view of variations in average prices with average quality from one market to another and variations in prices with the quality of individual bales sold in the same local market on the same day.

Differences in average prices from one local market to another tend to vary directly with the average quality of the cotton and inversely with transportation costs to centers of consumption. Differences in average prices from one local market to another, during the 4 years 1933-36, adjusted for differences in transportation costs to centers of consumption, when related to differences in average quality as indicated by central market evaluations above and below Middling $\frac{7}{8}$ -inch, gave a correlation coefficient of 0.96 ± 0.02 for markets in which cotton was sold on description on the basis of the classification of a public classer and 0.86 ± 0.01 for other markets.⁴ In other words, farmers who sold cotton in local markets where the average quality, as indicated by grade and staple length, was relatively high usually received on the average correspondingly higher prices than those who sold in local markets where the average quality of the cotton was relatively low.

Changes in average quality in the same local market from time to time usually are reflected to a large extent in average prices to growers. The relationship of changes in average prices to changes in average quality usually are considerably closer in markets with a dependable classification service to growers than in markets without such a service. But the average level of prices, adjusted for differences in grade and staple length of the cotton and for differences in transportation costs to centers of consumption, was little, if any, higher in markets with a dependable classification service than in those without such a service. These findings suggest that, unless the public classification service is associated with material changes in marketing methods and practices other than varying prices on the basis of quality, the possibilities of raising the price level in specific local markets by means of such a classification service are limited largely to the influence of improvements in quality brought about as a result of the classification services.

Price differentials on the basis of the grade and staple length of individual bales are important because of their influence on the

⁴ Howell, L. D. and Watson, Leonard J. Cotton prices in relation to cotton classification service and to quality improvements. U. S. Dept. Agr. Tech. Bul. 699, 55 pp. illus. 1939.

quality produced. Prices to growers may reflect little, if any, premiums and discounts for grade and staple length of individual bales, even though, as already indicated, the production of the higher grades and longer staples usually is rewarded to a considerable extent on a community basis. But unless substantial premiums and discounts for grade and staple length are made on an individual basis, farmers may find it advantageous to produce poor quality cotton and sell it on the basis of the reputation of the community and by so doing tend to reduce the average price level at the expense of those who produce cotton of higher quality.

Information assembled in recent years shows that, in farmers' local markets without a public classification service, grade and staple premiums and discounts to growers on an individual bale basis averaged less than one-third of those quoted in central markets. But such premiums and discounts for cotton sold on description on the basis of the classification of public classers were on the average equal to more than three-fourths of those quoted in central markets. Average premiums and discounts for grade and staple length varied considerably from one local market to another, but apparently these variations were not very closely related to the number or the type of buyers who operated in the markets.

Premiums and discounts for grade and staple length of the cotton sold on description on the basis of the classification of a public classer were calculated on the basis of the classification used in selling the cotton, whereas those for cotton sold in other local markets were calculated on the basis of the classification of government specialists, although little of the cotton was sold on the basis of this classification. The classification by government specialists of samples, usually taken from the gin press box, differed from the classification of local buyers of samples cut from the same bales for a considerable proportion of the cotton for which records were obtained. Premiums and discounts calculated on the basis of the classification of local buyers, were found to be somewhat greater than those calculated on the basis of government classification. But after making due allowances for the influence of these differences in classification, grade and staple premiums and discounts for cotton sold on description on the basis of a dependable classification service were substantially greater than those for other local markets.

Although prices in farmers' local markets without a public classification service averaged somewhat higher for the higher grades and longer staples than for the lower grades and shorter staples, these average premiums and discounts in many instances were less than the differences in prices of individual bales of cotton of the

same grade and staple length sold in the same local market on the same day. Prices of individual bales varied so irregularly on the basis of grade and staple that it was not unusual for some farmers to receive considerably higher prices for cotton of lower grade and shorter staple than others received for higher grade and longer stapled cotton sold in the same local market on the same day. During the seasons 1933-36, for example, prices to growers for about 7 per cent of the grades above Middling and about 6 per cent of the staples longer than $\frac{7}{8}$ inch were 0.15 cent or more a pound lower; and prices for about 8 per cent of the grades below Middling and about 10 per cent of the staples shorter than $\frac{7}{8}$ inch were 0.15 or more cents a pound higher than the average price of Middling $\frac{7}{8}$ -inch cotton sold in the same local market on the same day.

Factors Affecting These Irregular Price Differentials

These irregular variations in prices on the basis of grade and staple length may be accounted for largely by differences between the classification on the basis of which the cotton was sold and that on the basis of which premiums and discounts were calculated, by differences in value of cotton of the same grade and staple designation according to the official standards, by changes in price level during the day, and by differences in the bargaining power of farmers and of local buyers.

Information available indicates that a considerable proportion of the irregular variations in prices to growers, on the basis of grade and staple length, may be accounted for by differences between the classification by government specialists, on the basis of which premiums and discounts were calculated, and that by local buyers, on the basis of which the cotton was purchased. A comparison of the classification by government specialists of over 11,000 samples taken at the gin press box with the classification by local buyers of samples cut from the same bales during the seasons 1933-36, shows differences of one or more grades for almost 40 per cent of the bales. A similar comparison of over 7,000 samples shows differences of $\frac{1}{16}$ inch or more in staple length for about 46 per cent of the bales.⁵ Such differences in classification may be accounted for by differences in quality of the cotton in samples taken from different parts of the same bale, differences in physical condition of the sample at the time it was classed, differences in conditions under which the samples were classed, differences in competency of the classifiers and in familiarity with the official standards, and inherent differ-

⁵ The classification of the press box samples were those used in estimating the grade and staple length of the crop and the classifications of the cut samples were those made by local buyers as a basis for purchasing the cotton.

ences in the classification of cotton owing to the fact that it is not an exact science.

Considerable variations in prices of cotton of the same grade and staple length designations, when accurately classified, may be accounted for by differences in the quality and commercial value of the cotton. If differences in value for the different qualities of cotton included within a specified grade and staple length group, according to the official standards, are proportionately about as great as the average differences in value from one grade and staple length group to another, and this appears to be a reasonable assumption, the range in values of cotton designated as Middling 1 inch (staples in 1/16-inch group), for example, amounted on the basis of premiums and discounts quoted in central markets during the season 1936-37 to about 1.1 cents a pound. If character elements for which no official standards are available were taken into account the range would be increased considerably.

These differences in quality within a specified class are not always accurately reflected in prices, even in central markets, because of a lack of sensitiveness of the market mechanism, due in part to variations in classing and in part to differences in bargaining power and other factors. That these differences in value are recognized by the trade is indicated by the rules of the New Orleans Cotton Exchange, which state that: "Unless prohibited by law or by ruling of the Secretary of Agriculture, the value of cotton 'within' midway between the grades promulgated by the Secretary of Agriculture shall be considered the mean of the adjacent grades."⁶ Data on 1,670 lots of cotton sold on exwarehouse terms in the New Orleans market during the period December 1935 to July 1937 show that prices of 3 per cent of the lots differed from the official quotations for the respective grades and staple lengths in that market by more than 0.42 cent a pound; 8 per cent by more than 0.32 cent; and 20 per cent by more than 0.22 cent. These lots varied in size from a few bales to several hundred bales. These differences between prices and the official quotations are accounted for, no doubt, largely by differences in the quality and commercial value of cotton of the same grade and staple length designation and by differences in bargaining power of traders in the market.

Changes in price level during the day are great enough in many instances to account for considerable irregular variations in prices on the basis of quality for cotton sold in the same local market on the same day, but, in the computation of average grade and staple premiums and discounts, these differences tend to offset each other.

⁶ New Orleans Cotton Exchange, charter, constitution, by-laws, rules, and futures rules. Rule 12, Sec. 3, p. 92. 1936.

During the first 5 months of the season for the 4 years 1933-36, the daily range in prices of New York futures contracts for the near active month exceeded 0.20 cent a pound 15 per cent of the time and 0.40 cent, 4 per cent of the time. It is not known to what extent changes during the day in price level in the various local markets are associated with changes in prices of futures contracts, but a survey made during the 1935-36 season indicated that in more than 90 per cent of the local markets, prices were based on New York futures contracts. Information on futures prices is made available currently during the day in many local markets by means of the radio and through the commercial news department of telegraph companies. Detailed information obtained in a few local markets shows that the price level in these markets usually changes with reports of changes in prices of futures contracts so that changes in basis were not very frequent.

Differences in bargaining power of farmers and of local buyers doubtless account for a part of the irregular variations in prices to growers on the basis of grade and staple length. Differences in bargaining power result from differences in general business ability, in knowledge of quality and commercial value of the cotton, in financial obligations, etc. Some growers who are in debt to a local buyer may be able to exact relatively high prices for their cotton because the buyer is willing to pay relatively high prices in order to collect on accounts, whereas other growers who are obligated to sell their cotton to a specific buyer may be forced to take less than the prevailing market price. Some buyers who purchase cotton as a means of collecting debts or of increasing their volume of business may be able to pay a considerably higher price for cotton than other buyers not similarly situated.

Means of Improvement

Information assembled in recent years indicate that quality-price relationships in farmers' local markets can be improved by making available to growers dependable information on classification on the basis of uniform standards for their use in selling the cotton, by producing cotton more uniform in quality in each community so that the volume of cotton of each quality produced in each community will be large enough to be handled more economically, and by supplying farmers with adequate information on cotton prices, including differentials for quality, in central markets and in nearby points of concentration.

The skill and training required to class cotton accurately are such as to make it impractical for each grower to class his cotton according to the official standards as a basis for sale. Many local buyers

are not expert cotton classers and, in addition, their financial interests may result in some bias in their classifications. Under such conditions a public cotton classification service to growers appears to be essential to discriminate buying of cotton in farmers' local markets strictly on the basis of quality. Investigations made in recent years indicate that the usefulness of such a classification service may be materially influenced by the representativeness of the samples on the basis of which the classifications are made, the adequacy of the standards on the basis of which the various quality elements are evaluated and described, accuracy in the evaluations of the various quality elements on the basis of the established standards, and confidence on the part of growers and of buyers in the adequacy of the classification service and their willingness to sell and buy cotton on the basis of this information.⁷

A cotton classification service to growers to be of maximum usefulness would require:

1. Provisions for obtaining samples that are truly representative of the quality or qualities of cotton in the bale, means for correctly identifying the sample with the bale from which it was drawn, and care in handling and conditioning the sample so that the quality elements can be correctly evaluated.
2. Uniform standards upon the basis of which the quality elements of cotton can be described for commercial purposes with a reasonable degree of accuracy. As already indicated, such standards for grade and staple length are in general use, but the lack of standards for the elements of quality included under the term character limit the basis for and restrict the usefulness of a cotton classification service.
3. Competent and reliable classers, facilities conducive to accurate classification, and means for adequate supervision of the classifications by a competent and reliable agency.
4. Facilities for assembling the samples for convenience in classing, for recording the classifications on convenient forms, and for making the information available to growers in time for their use in selling the cotton.
5. Confidence on the part of sellers and of buyers in the adequacy of the classification service and their willingness to sell and buy cotton on the basis of this information.

The practical difficulties in connection with meeting these requirements would doubtless vary somewhat from one locality to another, and the successful operation of a cotton classification service

⁷ Howell, L. D. and Leonard J. Watson, Cotton prices in relation to cotton classification service and to quality improvement. U. S. Dept. Agr. Tech. Bul. 699, 55 pp. illus. 1939.

to growers in one market, under one set of conditions, should not be interpreted to mean that a similar service could be established and maintained with equally good results in every other market. The volume of cotton sold, the facilities available or that could be made readily available, and the attitudes and reactions of the persons involved may differ considerably from one locality to another. These differences are important practical considerations in determining the advisability of attempting to establish and maintain a cotton classification service to growers in the various localities.

A practical and dependable cotton classification service to growers would increase the bargaining power of farmers who produce the higher qualities of cotton and encourage needed adjustments in quality produced, increase the usefulness of price quotations on the basis of grade and staple, make possible a reduction in the waste of resampling, improve the collateral value of warehouse receipts, and make possible other economies in cotton marketing.

SEASONAL PATTERNS IN TOBACCO PRICES

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The seasonal movements in tobacco prices, as in many other agricultural products, are of considerable economic interest to farmers, buyers, speculators, and manufacturers. The seasonal patterns of tobacco prices are of scientific interest because of the difficulty of explaining the character of the patterns with the usual causal factors operating in the seasonal price patterns of other agricultural products. It may be advantageous to set forth briefly the causal factors of seasonality in the prices of agricultural products before developing the causal factors in the seasonal movements of tobacco prices.

Basic Causal Factors of Seasonal Price Patterns

Many factors of seasonal price movements may be divided into two general groups: first, basic and second, minor causal factors. The latter group, which includes such factors as secular trends, business cycles, size of prospective production, and indirect competition, needs no consideration for purposes of the paper. Their influence on seasonal movements is largely found in the variations of the absolute prices of a given season from the normal or expected seasonal pattern for the given product.

The major factors are threefold: first, character of the product; second, nature of the demand; and third, operations of the marketing system. The seasonality in agricultural production is the important causal factor accounting for the relatively high seasonal movement in the prices of individual agricultural products as compared to the products of some of the other industries. The flow of agricultural products to and through the markets is affected by perishability as it limits the storing of the product and by cost of storage as it relates to the value of the product.

The influence of demand on the seasonal movement of prices is found largely in the seasonality of the demand and in the degree of elasticity. Some agricultural products are consumed rather uniformly throughout the year regardless of the trend in prices, while others are desired only at relatively short times during the season. The demand for agricultural products as a group is relatively inelastic. But some agricultural products possess a higher degree of elasticity than others. Products possessing a higher degree of elasticity will decline less in price than those products with a more inelastic demand as the seasonal supply moves into the market.

The marketing system in its organization and operation may also have an important bearing on the character of the seasonal movement in prices. This influence expresses itself through two avenues: first, accumulative influence of marketing costs on prices; and second, efficiency of pricing mechanism in evaluating supply and demand conditions and the degree of development in the market organization and facilities to receive, hold, and control the flow of the products through the market channels.

The relative importance of each of the three basic causal factors—supply, demand, and market organization—in determining the seasonal pattern of prices varies from commodity to commodity. The operation of these three factors in determining price movements tends to result in three general types of seasonal price patterns under which most agricultural products, at least the more important products, may be grouped. The three types of patterns are graphically illustrated in figure 1.

Seasonal Price Pattern A

The predominant causal factor in the seasonal price movements of Pattern A is the accumulative influence of the marketing costs involved in the storage of the product. This price pattern is usually found where products are capable of long periods of storage both on the farm and in the market channels, as in the case of wheat, corn, oats, and cotton.¹ A high seasonality in the production and marketing exists for these products. The decline of market prices that might be expected with the increased seasonal marketings fails to occur very largely because of the ability of the marketing system to receive, store, and hold the products. The highest development in the capacity of the marketing system to evaluate supply and demand conditions and to transfer price risks is found in the price mechanisms serving the commodities in this group.

Seasonal Price Pattern B

Both the seasonal variation in deliveries to market and the costs involved in storage operate together to create the concaved-like-seasonal movement in prices illustrated in Pattern B. Seasonal patterns of this type exist mostly in livestock and livestock products.² There is a rather continuous production throughout the year in the case of these commodities. Regardless of this fact, the amount of

¹ JOURNAL FARM ECONOMICS, 7: 445, 1925. Iowa Exp. Sta. Cir. No. 113, page 13. Kansas Exp. Sta. Cir. No. 121, page 11. Illinois Exp. Sta. Bul. No. 324. Iowa Exp. Sta. and Ext. Ser. Bul. No. P5.

² Kentucky Exp. Sta. Bul. No. 283, pp. 508, 14-24. Kansas Exp. Sta. Cir. No. 132, pp. 1-14. Wisconsin Exp. Sta. Bul. No. 270, pp. 34-41. Kansas Exp. Sta. Cir. No. 158.

PRICE

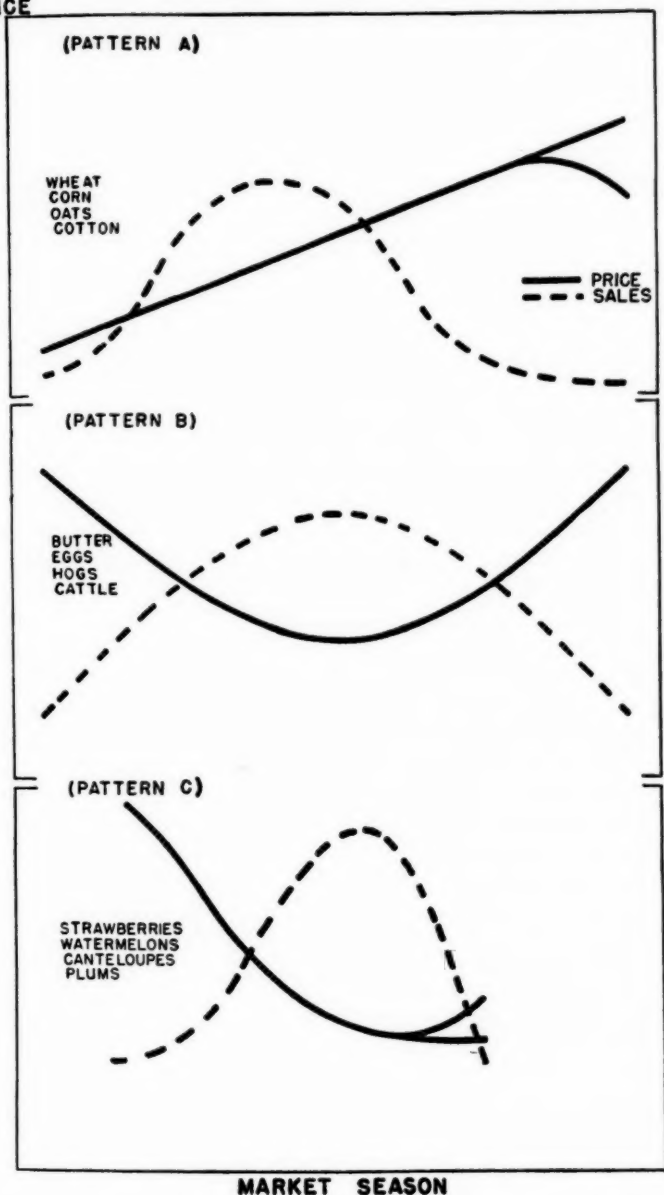


FIG. 1. SEASONAL PATTERNS IN THE PRICES OF AGRICULTURAL PRODUCTS.

seasonal variation that does occur in production is a relatively more important causal factor in determining the character of price patterns than seasonality of the production of the commodities grouped under Pattern A. The element of perishability is of more importance in the price movements of Pattern B. The influence of this factor would be much greater were it not for the contribution of refrigeration in the storage of livestock products. However, the addition of refrigeration to the costs of storage probably operates to increase the accumulative influence of costs on seasonal changes in prices at a greater rate than for the more staple products of Pattern A. These relatively higher marketing costs may raise prices to levels which, in relation to demand, reduce consumption. This in turn may make greater consumption necessary at seasons of heavy deliveries through reduced prices.

Seasonal Price Pattern C

The two important features of Pattern C are: First, the relatively short market period of a few weeks to a few months covered by the seasonal pattern; and second, the downward trend, sometimes rapid and sometimes slow, through the major part or all of the seasonal pattern. This pattern is largely the first half of price movement in Pattern B. The basic causal factors operating in the moulding of Pattern C are largely a combination of the character of supply and demand for the products. The products possessing this seasonal price pattern are mostly vegetables and the small fruits.³ Most products having this pattern are quite perishable, with the farmers having little or no ability to withhold them from the market. The products are rushed rapidly to market depressing prices to lower levels. The demand, possessing a greater seasonality in character than in either Pattern A or B, probably contributes not only to the rapidity of the decline of price as the supply moving to market increases but also to checking the extent of the rise of prices near the end of the season as the movement of supply diminishes. Market operation and storage cost, due to the shortness of the sale season, have less opportunity to exercise an influence on the seasonal course of prices in Pattern C than in Patterns A and B.

Seasonal Character of Tobacco Prices

Tobacco is sold chiefly through an auction system of marketing. In fact, no other important agricultural product is marketed by the auction method to the same extent as tobacco. In the three seasonal price patterns developed above, the auction system probably is

³ JOURNAL FARM ECONOMICS, 8: 213. 1926. Kentucky Exp. Sta. Bul. 319, pp. 279-280. California Exp. Sta. Bul. 459, p. 18.

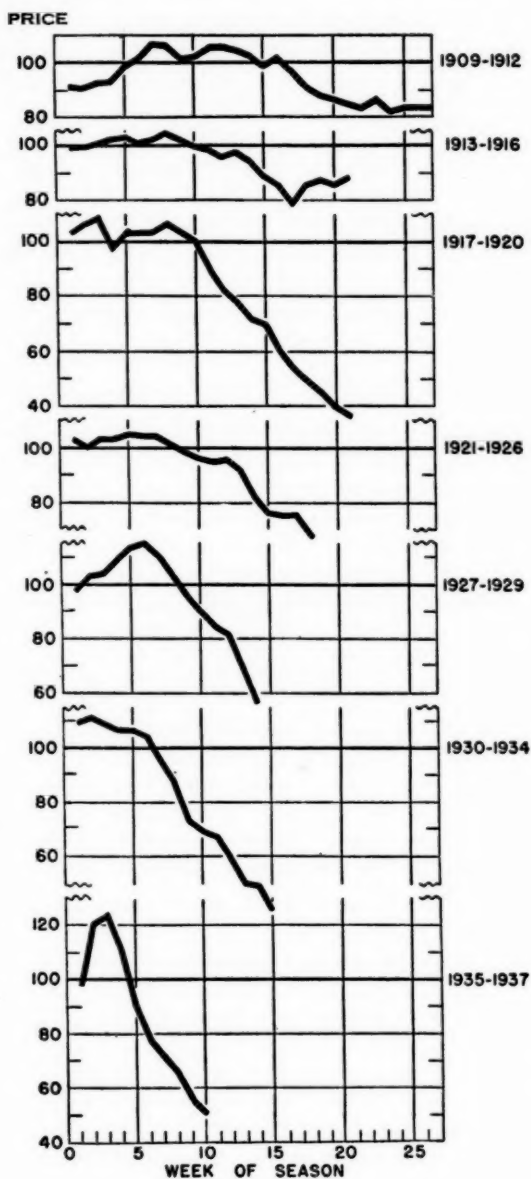


FIG. 2. PRICES OF BURLEY TOBACCO SOLD ON THE LEXINGTON MARKET IN PER CENT OF THE SEASON'S WEIGHTED AVERAGE PRICE, BY WEEKS, 1909-1937. SOURCE: KENTUCKY AGRICULTURAL EXPERIMENT STATION BULLETIN NUMBER 409, PAGE 420.

used to the greatest extent for the commodities in Pattern C. A short sale season of a few weeks to a few months is another factor which tobacco has in common with the commodities under Pattern C. But, in respect to storage, tobacco compares best with the products found under Pattern A. The seasonal movement of prices of tobacco, in some respects, particularly the downward movement toward the end of the marketing season, would place tobacco among the commodities under Pattern C. A typical or normal pattern that would characterize the seasonal movement of tobacco prices is hard to develop due to the differences in the price patterns for different types of tobacco and due to the historical adjustment occurring in these patterns.

Seasonal Price Movements of Burley Tobacco

The seasonal price pattern of burley tobacco may be characterized as a dynamic, constantly changing pattern. In the early years of loose leaf auction selling, the seasonal price pattern possessed a relatively high degree of stability (fig. 2). Prices rose slowly to a seasonal peak around the eighth week of the season with the markets closing at the end of a slow seasonal decline of prices. The gradual historical adjustments have changed the pattern in recent years to one largely of declining prices with the peaking of prices at relatively higher levels occurring earlier in the marketing season. The period of relatively high stable prices characteristic of the pattern in the earlier years has been displaced by a short period of rising prices followed by a period of declining prices of increasing rapidity reaching lower and lower levels. The segment of the pattern in the period of declining prices in 1909-12 covered 55 per cent of the season reaching the low level of 76 per cent of the season's average price.⁴ In 1935-37, the declining phase included 76 per cent of pattern with prices declining to the low seasonal level of only 37 per cent of the season's average price. A continuation of the long-time historical trend of adjustments in the seasonal price movements has failed to appear in the last two marketing seasons.

Seasonal Price Movements of Dark Tobacco Types

The pronounced adjustments in the seasonal movements of burley prices associated with time fails to appear in the seasonal price patterns of the dark types of tobacco produced in Kentucky. The important adjustments in the seasonal patterns of the dark types are associated with the change from the hogshead method to the loose leaf method of auction selling.

⁴ Kentucky Exp. Sta. Bul. 409, p. 418.

Hogshead selling continued to be an important method of selling down until about the time of the first World War. The seasonal

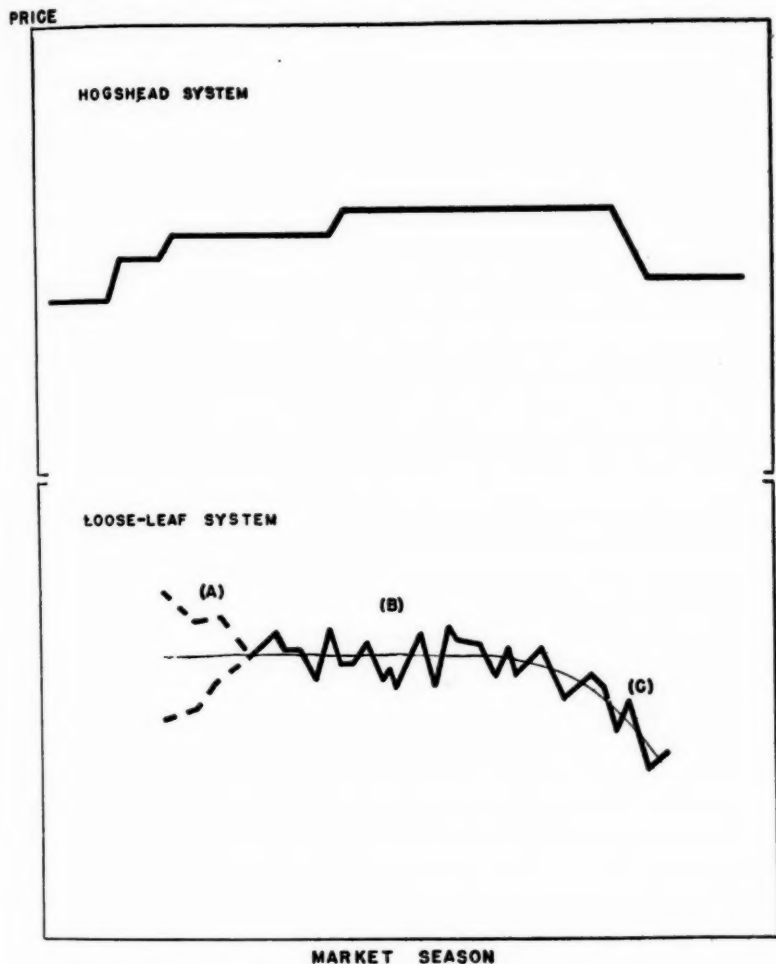


FIG. 3. TYPICAL SEASONAL PRICE PATTERNS OF THE DARK TYPES OF TOBACCO SOLD THROUGH THE HOGSHEAD AUCTION MARKETS AND THE LOOSE LEAF AUCTION MARKETS.

price pattern of dark tobaccos sold on the hogshead auction markets possessed an individual character all of its own (fig. 3). The prominent features of the price patterns in the hogshead market were twofold: First, the price pattern covered an entire year, and second,

a relatively high degree of stability prevailed in the prices throughout the season. The course of the seasonal prices, which was mainly horizontal, changed infrequently, often during not more than five or six weeks out of the year.⁵ The price changes were of a staircase-like character occurring abruptly with the first two or three adjustments often upward and the last adjustment of the season frequently downward. This character of the seasonal patterns of the dark types, as far back as information is available, remained fairly well established. Very little historical adjustment occurred in the seasonal patterns of the hogshead market except for increases in the number of changes and the amount of the change as the hogshead markets gradually gave way to the loose leaf method of selling.

The loose leaf auctions, which first appeared around 1900 in the dark tobacco belt of Kentucky expanded to become the important method of selling around the beginning of the first World War. The outstanding characteristic of the price pattern of the loose leaf auctions for dark tobaccos was the irregular saw-tooth-like movement of prices from week to week throughout the marketing season. Like the pattern of the hogshead market a general stable level of prices appears to exist through most of the season, but the weekly prices fluctuate rapidly about the general level. This rapid, irregular movement of prices for the dark loose leaf auction was not at any time a prominent characteristic of the seasonal prices of the loose leaf burley auctions.

The dark types have one feature in common with the pattern of burley seasonal prices in that a very material reduction has occurred in the length of both price patterns. But the decline in the length of the marketing season has not been paralleled by the development of a pattern of declining seasonal prices as has occurred for burley tobacco. The characteristics of the price patterns of the dark tobaccos in recent years are essentially the same as those prevailing twenty to twenty-five years ago, except for the adjustments in the length of the season.

The seasonal price pattern for the loose leaf sales of dark tobaccos may be divided into three segments. The first segment (A) is a period at the beginning of the season in which the prices vary widely above and below the season's average price (fig. 3.) The opening prices gradually move toward a level around which prices tend to move for the major part of the marketing season. This period of higher stability in the movement is the second phase (B) of the seasonal pattern. The third phase (C) of the pattern includes the

⁵ Price pattern of burley sold on the hogshead markets possessed a somewhat similar horizontal movement but this movement was interrupted much more by irregular adjustments in the price level.

downward trend of prices occurring at the end of the market season. The downward swing of prices rarely fails to occur. In some years, the downward movement is more rapid than others. In only two of the years since 1915 have the market seasons ended in an upward trend of prices.

*Causal Factors in the Seasonal Patterns
of Tobacco Prices*

Very little attention has been given to historical adjustments occurring in seasonal price patterns of agricultural products. The little research that has been done on the historical aspects of seasonal price patterns indicates that some important adjustments have occurred in the direction of a reduced amount of seasonal variation.⁶

Through long periods of time, the price pattern of a given commodity may tend to adjust itself from Pattern C toward Pattern A (fig. 1) as the seasonal character of the demand for the commodity may decrease and the commodity comes to be considered a greater necessity by the people; as the production of the commodity is improved by the development of varieties capable of longer storage, and by the lengthening of the period of flow to market through extending production to more distant areas; and, as the capacity of the marketing system to receive, transport, store, hold, and distribute the product is gradually improved. The historical adjustments in the seasonal patterns of tobacco have been in reverse to what would appear to be progressive readjustments if this general statement is correct.

The seasonal character of tobacco prices and the historical adjustments occurring in the patterns are the result of the dynamic changes in the relative importance of many factors, which may be grouped under the three basic causal factors of supply, demand, and operations of the market system. But the influence of these three causal groups on the seasonal price movements of tobacco is quite different in many respects from those found in the seasonal price movement of other agricultural products. Most of the causal factors cannot be subjected to any quantitative measurement for their relative importance. Therefore, the discussion must be limited largely to a qualitative treatment of how certain factors may have causal relations with the seasonal movement of tobacco prices.

Supply as a Causal Factor

The seasonal price movement for many agricultural products has an inverse relation to the seasonal movement of sales. In the case of

⁶ Wisconsin Exp. Sta. Bul. 270, pp. 34-41.

tobacco, the seasonal price and sale movements often have a positive relationship through all or most of the market season (figs. 2 and 4.) The quantity moving to market fails to provide the usual causal explanation for the seasonal price patterns in tobacco.

Seasonal variation in the quality of market deliveries is an important factor influencing the seasonal movement of tobacco prices. The first tobacco that farmers strip out and prepare for market is often the tobacco which was placed in the curing barn last. Tobacco cured in garages, wagon sheds, attics, poultry houses and the like because of the lack of adequate space in the tobacco barn is usually stripped out first. This tobacco, usually low in quality, goes to market in the first delivery. Some farmers may purposely hold back the better quality for deliveries until after they have had time to observe the trend of market prices. Thus, in the first week or so of the market season, sales are often low in quality as compared to the rest of the season.

The tobacco sold in the latter part of season usually declines in quality and is a factor of considerable importance in explaining the downward course of prices at the end of the season in both burley and the dark types (figs. 2 and 3). The late seasonal decline in quality comes from farmers delivering, in the last load of the season, the odds and ends left over from stripping operations; from farmers leaving the tobacco hang in the barns to be damaged by changing weather; from warehousemen offering the scrap tobacco accumulated on the auction floors throughout the season; and from buyers throwing back on the market purchased tobacco found undesirable for their needs.

Geographical differences in the quality of tobacco produced also play a prominent part in the seasonal variation of the quality of tobacco deliveries and thus in the price patterns. Generally speaking, in burley tobacco, the mountain tobacco produced on poor soils and under less favorable farming practices is most prominent in the sales during the first week, central bluegrass tobacco in the second to the fourth week, and the outer bluegrass and mountain tobacco in the closing weeks of the market season. The development of hard surfaced roads and the increased use of trucks have been important factors contributing to the increased flow of the tobaccos from the more distant areas toward the Central Bluegrass Markets. Geographical variations in quality probably do not play as important a part in the seasonal price patterns of the dark types as they do in the burley price patterns.

Demand as a Causal Factor

The factor of consumer-demand probably has little or no influence on the seasonal movement of tobacco prices. The demand

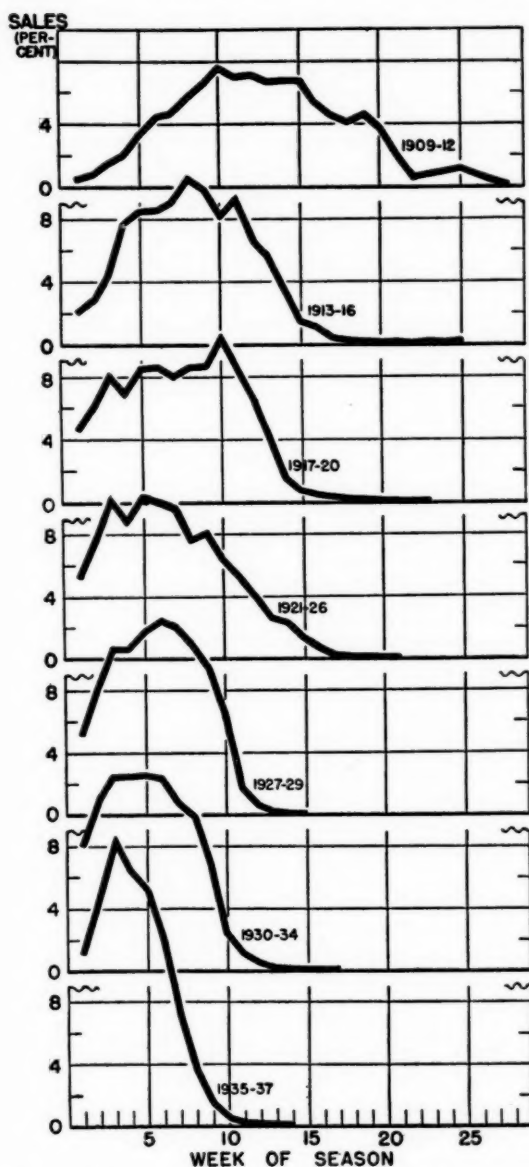


FIG. 4. WEEKLY SALES OF BURLEY TOBACCO ON THE LEXINGTON MARKET, IN PER CENT OF TOTAL SALES FOR THE SEASON, BY PERIODS, 1909-1937. SOURCE: KENTUCKY AGRICULTURAL EXPERIMENT STATION BULLETIN NUMBER 409, PAGE 411.

for finished tobacco products changes very slowly; and probably relatively little seasonality exists in the consumption of tobacco products. Even if a wide seasonal variation in the consumption of tobacco products does exist, the force of the factor would have difficulty expressing itself in the prices paid on the auction floor for supplies that are purchased in the relatively short period of 10 to 20 weeks for consumption in finished products two or three years and even as much as five or six years later. It is possible, however, that the long time increase in the demand for burley and the long time decrease in the demand for dark types of tobacco may be factors having an influence on the historical adjustments occurring in tobacco prices. This will be discussed more fully later.

Operation of Marketing System as Causal Factor

The character and the historical adjustments occurring in tobacco seasonal price patterns may be traced very largely to the operation of the marketing system. The causal relations are to be found in the functional operations of the system rather than in the costs of marketing. Tobacco is stored for long periods of time, but the accumulation of storage costs has little or no opportunity to influence price movements in the short marketing season. The major part of storage service is performed after manufacturers have purchased the tobacco.

The tobacco marketing system, which is mainly a pricing mechanism, is not in continuous operation throughout the year as is the case of the marketing systems for some agricultural products. Each market season is quite independent of the preceding one. Each season must go through the three phase cycle of: first, opening the markets and setting the system into motion; second, transferring of the tobacco from the seller to the buyer; and third, gearing the market operations for the closing of the markets.

In the three-phase cycle, there are two functional problems in the market operations which have important influences on the seasonal character of tobacco prices. These are: first, balancing the supply and demand forces to establish the market price level; and second, bringing the sellers and buyers together for the sale. The latter expresses itself all through the market season in the competition among warehousemen for the opportunity to sell the growers' tobacco and in the competition of buyers to purchase their supplies. The former functional problem has its greatest influence on seasonal price movements in the opening phase of the market operations (fig. 3-A).

Balancing the forces of supply and demand: The estimating of the supply of tobacco produced each season, which includes both quan-

tity and quality, has not been as accurate as in the case of some other agricultural products, very largely because of the difficulty in accurately judging total quality and quantity from observations of tobacco standing in the field. The methods and facilities for gathering data and evaluating supply conditions for price making purposes have not been developed to the same high degree of perfection for tobacco as for some of the other agricultural products.

The buyer must set up a schedule of grade-prices based on what knowledge he has from government crop estimates and his own observations. The opening days of the market provide an opportunity for the buyer to match his estimates with that of other buyers. The buyers must quickly revise their estimates up or down to establish a price level, for the sale season is short and the tobacco is moving rapidly to market. The Lexington Market opens one day ahead of all other burley markets to facilitate in a quick establishment of the market price level. The buyers are called in from the outlying markets to observe the sale and to receive the price instructions from the manufacturers for their respective markets. The market price level established early in the season is sometimes materially changed later as the flow of tobacco to market brings out errors in the judgment of buyers on the quality and quantity produced.

Bringing the buyers and sellers together: Very little is known regarding the amount and character of the competition in buying tobacco on the auction markets. About the only approach to determining what relationship may exist between the character of the seasonal price patterns and competition in selling and buying tobacco is a qualitative-historical one by associating known changes in the competitive conditions with the adjustments that have occurred in the seasonal price patterns.

Keen competition prevails among warehousemen for the opportunity to sell the farmers' tobacco. This has been particularly true since the expansion and overlapping of market areas made possible with the improvement of highways and the increased use of motor trucks. This competition has not expressed itself so much in cutting selling costs as in advertising the market and providing more efficient sales service for the farmers and buyers. Warehousemen have organized themselves for purposes of improving the efficiency of the marketing service such as speeding up the rate of sales, prohibiting bad trade practices, and improving warehouse sale facilities.

Among the services provided for farmers is the current reporting of market prices. The practice of reporting prices in the form of market averages and high crop averages, without regard to seasonal changes in quality, is misleading to farmers. The higher seasonal price levels due to quality encourage farmers to seek an opportu-

nity to sell during these periods. As more farmers rush to sell at the same time, warehousemen and market centers are forced to offer stronger competition to maintain or increase their share of the tobacco flowing to market. The large producers who usually produce the better quality are in a better bargaining position to secure sale space at the time of the highest market average price. The seasonal increase and decrease in price tends to become a self-perpetuating condition as more and more of the larger and better farmers seek to sell at the same period of the season. The smaller producers forced to sell at other periods of the season become dissatisfied with what appears to them to be lower seasonal prices.

Competitive conditions in the buying on tobacco auction markets have undergone changes which may have had causal influences on the seasonal price patterns. The composition of the buying agencies has undergone important changes since the days of hogshead market. In the hogshead markets, for both burley and the dark-types of tobacco, the staircase type of seasonal price pattern (fig. 3) may be the result of the dominance of one buyer. (This was a period in which the American Tobacco Trust was the principal buyer in American markets.) The hogshead market was more of a dealer's market than the loose-leaf auctions. Speculators and dealers travelled the countryside purchasing tobacco from growers by private treaty. Much of this tobacco was graded and prized by the dealers for sale on the hogshead markets. There was little reason for prices to vary much with one buyer dominating the situation.

Upon the dissolution of the American Tobacco Trust, several smaller companies were established with each organized around the production of one finished product or a limited number of products. These companies probably did not come into full competition with each other for supplies since the finished products would call for somewhat different grades of tobacco. The seasonal price patterns for burley still possessed a high degree of stability immediately following the dissolution of the American Tobacco Trust. The new tobacco companies gradually enlarged their line of finished products in response to various economic advantages and in particular to the rapid increase in the demand for cigarettes following the World War. This adjustment would tend to create a need for similar supplies and thus a basis for more direct competition on the auction floors. Another important development was the entrance of the low priced cigarette manufacturers into the field in the period of the 1920's. Under these slowly changing conditions, seasonal price patterns of burley began to develop an upward and downward movement of increasing rapidity (fig. 2).

Assuming that these adjustments in buying conditions are in-

dicative of increasing competition for supplies, the question may be logically raised as to why increasing competition should destroy a relatively stable seasonal price trend. The answer to this question might be that some of the inherent characteristics of the auction system operate to interfere with or destroy perfect competition. For example, the short marketing season combined with the uncertainty as to the definite quantity and quality of tobacco available may have encouraged buyers to buy more rapidly in the early part of the season to be certain of obtaining their requirements and to have a greater amount available on the markets from which to select the desired qualities. Again, the buying power of the various buyers may not remain the same throughout the marketing season and from year to year. Variations in the competitive strength of the buying agencies may provide a partial answer to the question why seasonal price patterns of dark tobacco markets have not experienced the same historical adjustments that occur in the burley markets.

The composition of the buying agencies and their purchasing policies in the dark markets and burley markets are materially different. In the transition from the hogshead system to the loose-leaf system, some manufacturers attempted to eliminate the services of the commission buyers and leaf dealers by setting up their own buying agencies and purchasing direct from farmers over the auction floors. This movement has gone much further in the burley markets than it has in the dark markets. Burley now moves mostly direct from farmers to a few large manufacturers. The commission buyer and leaf dealer still remain a more important buying element in the dark markets, primarily because of the importance of foreign outlet for the dark types and partly because of the general decline of the demand for dark tobaccos.

The policies and practices of the leading buyers, for both the dark and burley markets, have been to buy at a fairly uniform or constant price level throughout the season and to purchase a fixed percent of each day's sales throughout the season. But this policy does not operate with an equal degree of influence on the seasonal price movements in the dark and burley markets. The principal buyers purchase a smaller percentage of the total supply in the dark markets. This may leave the leaf dealer and commission buyer in a position to exercise a much greater influence on the seasonal price movements. The saw-tooth-like irregular movement of dark tobacco prices (fig. 3) may be a result of the pressure of commission or order buyers entering the market to fill orders they have received from time to time during the season.

The commission and order buyer in the burley markets is less

important as measured in terms of the proportion of the total volume handled. However, in case of certain grades of burley the leaf dealer and order buyer are relatively more important. This is particularly true in the case of medium and low grades and it is in the case of these grades that the greatest amount of variation occurs in the seasonal movement of burley prices. Burley of the brightest colors and highest qualities, which possesses the greatest degree of uniformity in seasonal price movements,⁷ is purchased very largely by the three or four principal buyers who operate on the policy of taking a limited percentage of tobacco on each sale through the season.

Differences in the character of the buying agencies and their operating policies are not the only factors that may account for the dissimilarities of the burley and dark tobacco price patterns. The length of the marketing season for the dark types, though reduced considerably in the last 25 years, is still more than ten weeks longer than the burley marketing season. This gives the buyers more time to evaluate quantity and quality and to select the desirable grades. The dark tobacco markets have not had whatever benefits a long-time increase in demand might add to the tempo of bidding as has occurred in the case of burley. The decline in both the foreign and domestic demand for the dark types may have left the dark markets more of a buyer's market and reduced the need for strong competition among buyers to secure supplies. The burley markets may be more of a seller's market as a result of the increase in demand over the past 25 or 30 years. Another factor which may have an important influence on the competition in the auction markets of the dark types is the practice of buyers going direct to the country and purchasing crops from the farmer. Buyers of burley dropped the practice soon after the loose-leaf auctions were established.

DISCUSSION BY ROY A. BALLINGER

Louisiana State University

It is commonly assumed that the price differentials between the various qualities of any agricultural product should be approximately the same in the local farmers' markets as in the wholesale markets. Such agreement is obviously necessary if a reasonable adjustment between the qualities desired by the consumer and those supplied by the farmer is to be obtained.

Dr. Howell has given an excellent summary of the results of extensive research on this problem in connection with cotton. No doubt an appreciable part of the recent criticism, by cotton mills in this and other countries, of the quality of American cotton is a result of the failure of the market

⁷ Kentucky Agr. Exp. Sta. Bul. 409, p. 461.

to adequately encourage farmers to grow the kinds of cotton the mills wanted and were willing to pay premiums for. Moreover, it seems doubtful if a system of marketing that merely succeeds in adjusting the average price in each local market to the average quality sold there, as now seems to be true in this country, can ever do very much to remedy this difficulty. The quality of cotton reaching a local market is normally too variable for an average local price to effectively reward each grower according to the quality of his own product. These local variations in quality may be considerably less in markets situated within a strong one-variety cotton community than in other markets, but they are still sufficient to be a matter of importance with respect to price.

The fact, as pointed out by Dr. Howell, that quality has been more closely related to the price received for individual bales in local markets where a public classification service was available than in other local markets naturally suggests that there is need for an extension of such facilities. The logical end of such a development is some system of universal classification through which every cotton grower before selling his cotton can be informed of the grade and staple length of each bale. Dr. Howell did not discuss the possibilities of such a service, although the idea is by no means new. Several bills designed to accomplish this purpose have been introduced in Congress in recent years. The Smith-Doxey Classing Service started in 1938, which provides free classing to members of approved cotton-improvement communities, is a step in this direction. Space does not permit a discussion of the relative merits of various proposals for the universal classing of cotton before its sale by growers. The two greatest difficulties appear to be the expense involved and the difficulty of getting many growers to wait even a day or two after ginning so that the class of their bale of cotton can be determined and reported to them before they sell it.

However, even with the best universal classing service that could be established with the present knowledge of how to measure cotton quality and an adequate price reporting system to accompany the classification service, it is doubtful if prices in local markets would completely reflect the quality-price differentials of central markets. There are several reasons for this. In the first place, as Dr. Howell has pointed out, the present standards of the Federal government apply only to grade and staple length. There are no standards for character. It is well known that cotton merchants and cotton mills make at least some rough price allowance for character differences when buying cotton. At times this may have made quality-price relationships in local markets appear more inaccurate than they actually were.

Another factor of great importance is the inexactness of the present determinations of the grade and staple length of cotton. The very best classers when working under ideal conditions for classing will fail to agree on the correct grade and staple length of an appreciable proportion of any sizable lot of cotton. When cotton is classed by less skilled persons and under less ideal conditions, the variation between classers is likely to be considerable. The significance of this has become more apparent in recent

years under the government's cotton loan programs. Under certain conditions farmers have been able to secure two official classes on a single bale of cotton. Rather frequently the two classes have been significantly different and the farmers have, of course, placed the cotton in the government loan under the highest class they obtained.

In addition to the difficulties of completely and accurately classing cotton according to its quality, the mechanics of buying and selling may at times cause quality-price differentials in certain local markets to differ from those quoted in central markets. For example, cotton merchants frequently sell a considerable amount of cotton to mills for forward delivery, before they themselves have acquired the cotton. Such sales call for the delivery of specific qualities of cotton and frequently for cotton produced in a designated section of the Cotton Belt. At times merchants misjudge the amount of a particular kind of cotton that will be available to them and have to offer unusually high prices to secure it. Such situations primarily affect the markets in which the merchant has facilities for purchasing cotton and will cause them to get out of line with other markets. Influences of this sort are constantly at work and will probably continue to be present in spite of any system of official classification and market news service which might be developed.

In spite of the apparent difficulties it seems that some of the more promising proposals for improving the classing and market news services so that they will be more widely used by farmers might well be tried out, at least on a small scale. They might well result in sufficient improvement in the accuracy with which central market values are reflected in local markets to be worthwhile not only to farmers but to the cotton trade and to the consumers who use the final product.

DISCUSSION BY S. L. CLEMENT

North Carolina State College

It is my plan to limit my discussion to only one phase of the price pattern of flue-cured tobacco, based on data collected and analyzed by the North Carolina Agricultural Experiment Station, pertaining to the daily variation in prices paid for a specified grade of tobacco on a specified market—variation which is largely concealed in the daily, weekly, or monthly averages. Our attention in North Carolina has been chiefly centered on these variations within the day, although the seasonal patterns which we have observed in flue-cured prices agree with the findings presented in Professor Clark's enlightening paper.

During the 1938-39 marketing season, records were obtained on the sales of 68,000 lots of Type 12 flue-cured tobacco, amounting to more than nine million pounds, on the Farmville Market, one of the five markets in the state on which official inspection and Market News Service is provided. This sample represents slightly over 50 per cent of the sales on the market. The sale record of each lot includes the date, number of pounds, official grade, price received, company buying the lot, and the company grade.

When the Market News Service reports an average price of \$14 per 100 pounds for a given grade, say B6F, the question may be raised as to how widely prices of different lots of this grade varied from \$14 on the given date. The accompanying three rough charts give some idea of this range. In the first figure the daily average price, the daily low price and the daily high price are plotted for grade B6F. On many days there was an extremely wide spread between low and high price. The range on September 26 was from \$9.75 to \$28, a spread of \$18.25 as compared with a weighted average price of \$14.79 for that grade. The season average spread

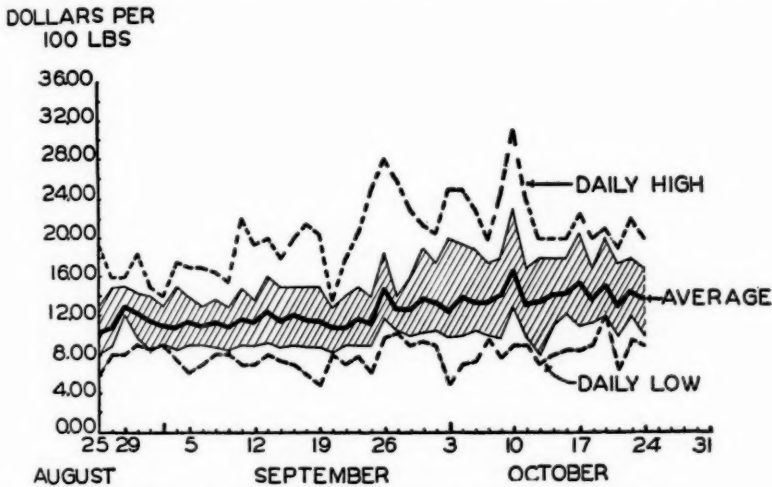


FIG. 1. DAILY HIGH, LOW, AND WEIGHTED AVERAGE PRICE PAID FOR B6F FLUE-CURED TOBACCO, FARMVILLE, 1938-39.

The shaded area represents the range in prices paid for the central 80 per cent of poundage sold, between the 10th and the 90th percentiles.

between daily high and low price paid for different lots of this grade was \$12.46 per 100 pounds as compared with a season average price of \$12.20 for all tobacco of this grade. Figures 2 and 3 show the same information for grades B5F and B4F, respectively. With the large number of federal grades into which flue-cured tobacco is classified it was not practical to show this analysis for all grades. However, columns 5 and 6 of table 1 show the average daily spread of a number of grades and the ratio of the spread to the average price.

Of course, this total range between high and low price paid for a given grade is in some instances unduly influenced by a few lots selling at extremely low or extremely high prices. By eliminating 10 per cent of the poundage at both extremes of the price range, and measuring the price range of the remaining 80 per cent of the poundage we can overcome this objection. Columns 7 and 8 of table 1 and the shaded area of the three charts show this information. Thus the average of daily spread between the 10th and 90th percentiles was \$9.50 per 100 pounds for grade B4F,

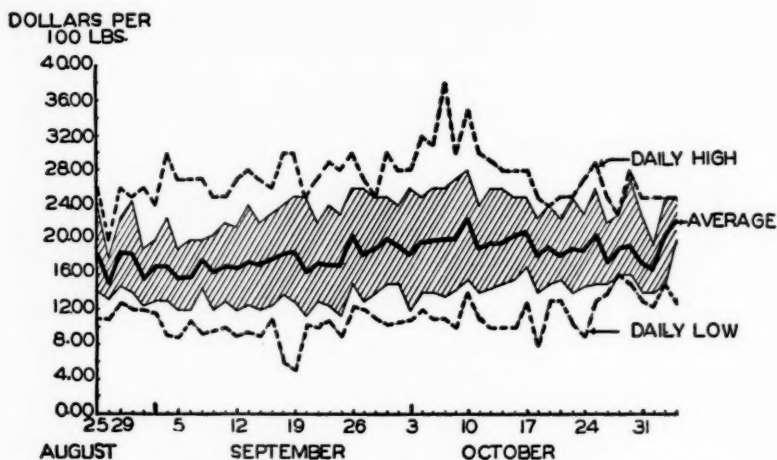


FIG. 2. DAILY HIGH, LOW, AND WEIGHTED AVERAGE PRICE PAID FOR B5F FLUE-CURED TOBACCO, FARMVILLE, 1938-39.

The shaded area represents the range in prices paid for the central 80 per cent of poundage sold, between the 10th and the 90th percentiles.

\$9.39 for B5F, and \$6.40 for B6F. The ratios of average spread to average price for these grades were 38.34 per cent, 51.71 per cent, and 52.38 per cent, respectively.

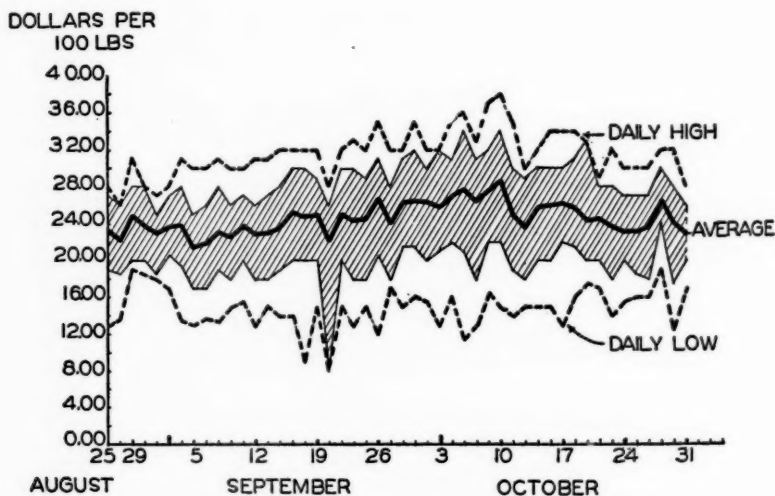


FIG. 3. DAILY HIGH, LOW, AND WEIGHTED AVERAGE PRICE PAID FOR B4F FLUE-CURED TOBACCO, FARMVILLE, 1938-39.

The shaded area represents the range in prices paid for the central 80 per cent of poundage sold, between the 10th and the 90th percentiles.

Here again averages conceal variations within the average. Analysis of daily deviations from the mean price of a given grade shows a tendency for a wider variation in prices when the mean price is high than when it is low. For example, on days when the average price of grade B3F was below \$24 the standard deviation tended to be smaller than when the average price was above \$24. This would mean that, for a given grade, buyers' bids tend to vary more widely in dollars per 100 pounds when the average price is high than when it is low. The standard deviation, however, did not increase in the same proportion as the average price.

TABLE 1. WEIGHTED AVERAGE PRICE AND AVERAGE DAILY SPREAD BETWEEN HIGH AND LOW PRICES PAID FOR 10 GRADES OF TOBACCO, FARMVILLE, N. C., 1938-39 SEASON

Federal grade	Total No. lots in sample	Total lbs. in sample	Season average price	Average daily spread between high and low prices			
				Total sales		Central 80 per cent of sales	
				Spread	Pctg. of average price	Spread	Pctg. of average price
1	2	3	4	5	6	7	8
B6GF	979	82,116	11.09	9.33	84.13	5.86	52.84
B6F	2,645	377,376	12.20	12.46	102.13	6.40	52.38
B5F	3,951	563,852	18.16	15.91	87.61	9.39	51.71
H5F	1,012	126,778	20.82	12.81	61.53	8.65	41.55
X4F	1,287	145,264	21.48	13.52	62.94	9.15	42.60
B4F	4,390	696,816	24.78	16.88	68.12	9.50	38.34
X3F	2,385	322,144	25.33	14.46	57.09	8.11	32.02
X2L	1,663	276,144	29.26	10.74	36.71	5.92	20.23
B3F	3,013	540,760	30.12	15.27	50.70	7.73	25.66
C4L	996	186,762	33.68	12.30	36.52	7.27	21.57
Total	22,321	3,318,012	23.39	14.46	61.82	8.14	34.80

It is a relatively simple task to show that prices for a given grade of tobacco vary widely within the day, but it is not so simple to explain the causes of the variation. However, I shall suggest five factors which appear to be related to this variation. In the first place interviews with several hundred tobacco growers indicate that many of them believe the personal relationship between the grower and buyer has an influence on the price received. According to their statements, many growers attempt to cultivate friendship with company buyers by entertaining them at barbecues, picnics, fox hunts, and such affairs, by presenting them gifts of game, farm produce and liquor, and in various other ways. Some growers stated that they receive prices above the average because of personal factors. It is possible for a buyer to pay one grower a higher price than another since he buys on average prices for certain grades. He usually knows whose tobacco is being sold as the warehouseman announces the fact.

Another factor related to price variation is the light in which the tobacco is sold. While all warehouses are lighted by sky-lights the lighting is seldom, if ever, absolutely uniform throughout the building. A given lot of tobacco will have a better appearance in one light than in another. Growers realize this and many of them reported that they attempted to select the degree of light most favorable to their particular quality of tobacco, tobacco which is off-color being placed in the darker locations if possible. Weather, of course, affects the light, often varying throughout the day.

The above mentioned factors are doubtless related to price variation but we have not been able to measure their effect from data available.

A third factor which apparently is related to price variation is the size of the lot in which tobacco is sold. In certain grades there appeared a direct relationship between the weight of the lot and the price paid. For example, an analysis of variance on grade B4F, classifying the lots into five weight groups up to 499 pounds, indicates that the daily average price varied from \$24.27 per 100 pounds for lots weighing less than 100 pounds to \$26.76 for lots weighing from 400 to 499 pounds. For some grades this relationship was not found to hold. An examination of 17 of the principal grades indicates that in 10 of these grades price tended to vary with size of the lot. The relationship did not hold for the lowest priced grades and for certain of the medium priced grades. We have no positive explanation of this fact. Possibly the economy of handling larger lots is a factor. There was some evidence that only certain companies paid prices varying with size of lot.

Another factor related to price variation is variation in grading on the part of both official graders and company buyers. During the 1939-40 season records were obtained on several hundred lots of tobacco on which the first bid was rejected by the grower and the lots were resold on the same day. Most of these lots were also regraded by official graders. On the second inspection less than half of the lots were given the same grade as on the first inspection. Moreover, many of these rejected lots were rebought by the same companies which made the original bid and company grades were assigned by the buyer in each case. Here also less than half of the lots were assigned the same grades on the second sale as on the first. The sample was too small for basing any definite conclusion, but it does indicate that the grading factor is responsible for a considerable part of the price variation.

The fifth factor is the variation in quality within each grade, from the top side of the grade to the lower limit. While this normal range in quality naturally accounts for a certain range in price, it cannot account for nearly all of the variation found.

As the discussion has indicated, the analysis of all available data has not been completed. When it is completed, we hope to have some more tangible explanation of the factors related to price variation. One factor which we plan to investigate further is the variation in grading on the part of both federal licensed graders and company buyers. This will involve some study of the relation between United States Standard grades and company grades. Further study will also be given day-to-day variations

in average prices for specified grades and some of the factors associated therewith.

Briefly summarizing this discussion, it has been shown that on a given date there is a wide variation in the prices paid for different lots of the same grade of tobacco and that within a grade the size of this dispersion tends to vary directly with the average price paid. Two qualitative factors associated with this variation, for which we have no measure, are personal relationship between grower and buyer, and variation in the light in which tobacco is graded and bought. A third factor found to be related to price variation within the majority of grades is variation in the weight of lots in which the tobacco was sold, the smaller lots selling for lower prices than the larger lots, at least up to 400 pounds. This relationship, however, did not hold for the cheapest grades and for certain others. The fourth factor, and probably a very important one, is variation in grading on the part of both federal graders and company buyers. The fifth factor is a certain normal range in quality within a given grade.

THIRTY-FIRST ANNUAL MEETING OF THE AMERICAN FARM ECONOMIC ASSOCIATION

The thirty-first annual meeting of the American Farm Economic Association was held in New Orleans, Louisiana, Roosevelt Hotel, December 27, 28 and 29, 1940.

Report of the President

The past year has been marked by the continued excellent support of the various activities of the Association by members. I wish especially to thank all those who have contributed to the annual meeting with constructive suggestions, leadership in discussion and the like. Your generous response at all times has been encouraging and has contributed in a large measure to the success of the year's activities.

The program for the annual meeting, which has been my primary concern has been prepared in accordance with the programs of recent years and in keeping with the expressed desire of many members for less formality and for more opportunity for free discussion. This trend in program-making presents several problems. For example, the method can not be developed too rapidly since it requires greater coordination of the functioning of chairmen and leaders of discussion, both formal and informal, and hence for greater experience in handling this type of program by the membership. Problems of preparing the materials of discussion for the dual purposes of the annual meeting and the JOURNAL also arise. Some topics are better suited to the more formal rather than the less formal techniques. The solution of these difficulties is not suggested here. The demand for greater spontaneity nevertheless has sufficient merit that, in the interest of making the programs more attractive for those attending the annual meetings continued consideration should be given to developing the round-table emphasis. Perhaps, the problem has sufficient importance to command more complete discussions at a future meeting.

It has been customary for the Association to give consideration to the interest of special groups from time to time. Graduate students in Agricultural Economics were given special recognition in planning the program for 1940. A committee consisting of seven graduate students and selected partly because of their expressed interest and partly because of their accessibility to New Orleans was appointed to assist in preparing a program. The great enthusiasm with which these students undertook their responsibility and the vigor with which they carried their program forward to completion

is sufficient testimony to the high service that the Association can render to these future leaders in Agricultural Economics.

(signed) H. B. PRICE, *President*

Report accepted as read.

Report of the Secretary-Treasurer

Finance: The Association's operating income for the fiscal year just closed was \$6,311.69. Expenses of operation were \$4,325.12, leaving a balance of \$1,986.57. Receipts were slightly less, and expenses were slightly less than in 1939. The excess of operating receipts over operating expenses was about the same as that of the previous year.

Non-operating income was \$1,194.13. This is a gratifying increase over that of the year 1939. The average rate of return on the Association's investments was 4.8 per cent.

The excess of total receipts above expenses for the year was \$3,180.70.

The Committee on Investment Policy has reported its operations in detail to the Executive Committee. The market value of the Association's stocks and bonds at the end of the fiscal year (November 30, 1940) was \$22,773.12. This was \$2,316.10 less than their cost to the Association.

The operating and financial statements for the fiscal year 1940, follow:

OPERATING STATEMENT
THE AMERICAN FARM ECONOMIC ASSOCIATION
Year Ending November 30, 1940
(Compared with 1939)

		1940	1939
<i>Operating Income</i>			
Receipts from dues.....	\$ 5,992.20		
Back Numbers sold.....	173.35		
Reprints sold.....	146.14		
		\$ 6,311.69	\$ 6,733.61
<i>Operating Expense</i>			
JOURNAL OF FARM ECONOMICS			
Vol. XXII, 4 issues.....	\$ 3,200.49		
Vol. XXII, 4 reprints.....	509.94		
		\$ 3,710.43	
Annual Meeting Expense			
Annual Meeting, 1939....	\$ 208.18		
Ballots, Envelopes, 1940...	19.00		
		227.18	
Back Numbers Purchased....	\$ 94.00		
Postage.....	194.33		
Office Supplies.....	46.30		
Miscellaneous.....	52.88		
		387.51	
		<u>4,325.12</u>	<u>4,752.05</u>

Excess, Receipts above Operating Expense.....	\$ 1,986.57	\$ 1,981.56
Plus Non-Operating Income		
Interest on Securities.....	\$ 1,155.54	
Interest, Savings Account.....	38.59	
		<u>1,194.13</u>
		885.96
Total Excess, Receipts above Expenses.....	<u>\$ 3,180.70</u>	<u>\$ 2,867.52</u>

FINANCIAL STATEMENT

THE AMERICAN FARM ECONOMIC ASSOCIATION

December 1, 1940

Assets

Cash—bank balance.....	\$ 1,216.61	
Stocks and Bonds—cost*....	25,089.22	
Savings Account.....	2,020.58	
		<u>\$28,326.41</u>
		\$25,145.71

Proprietary Interest

Net worth December 1, 1939.....	\$25,145.71	
Plus net returns for year		
Operating.....	\$ 1,986.57	
Non-operating.....	1,194.13	
	<u>3,180.70</u>	
		<u>\$28,326.41</u>
		\$25,145.71

* Market value as of November 30, 1940—\$22,773.12.

Membership: Even the American Farm Economic Association is not immune from the effects of the war. Membership fell from 1,269 in 1939, to 1,248 in 1940—a loss of 21 members. The membership in 1940, as compared to the previous year, classified by groups, is given below.

	1939	1940
Individual Members	909	898
American Libraries and Firms	194	209
Foreign Libraries	166	141
Total	<u>1269</u>	<u>1248</u>

Twenty-five foreign libraries have been dropped during the year because of delinquency.

For some reason unknown to the Secretary-Treasurer a fewer number of new members in the United States were added to the rolls than was the case during previous years.

The Association has never been able to recruit any considerable number of members from Southern states. The thirteen Southern states now have 173 members. Over one-third of this number are in two states—Texas and Virginia. None of the other eleven states

have over fifteen members. The probable reasons are (1) that the Association's annual meetings are generally held outside this region, and (2) that the major portion of the articles in the JOURNAL are of less direct interest to the South than to other regions.

Nevertheless there are large numbers of workers in the South in the field of Agricultural Economics who could benefit by membership in the American Farm Economic Association. The Association would also benefit by their membership. It is hoped that this meeting will do much to stimulate interest in the Association on behalf of that large group of Agricultural Economists devoting their attention to the problems of southern agriculture.

Respectfully submitted,

(signed) ASHER HOBSON, *Secretary-Treasurer*

Report accepted as read.

Report of the Auditor

In accordance with the request of the president of the Association, I have examined the accounts of the secretary-treasurer of the American Farm Economic Association for the year ending November 30, 1940. I hereby certify that all the entries were checked against supporting vouchers and found in agreement. The assets of the Association were confirmed by an examination of the bank statements and by checking the securities owned by the Association.

I certify further that the books have been carefully and neatly kept and the financial statement of the secretary-treasurer reflects the financial transactions and the financial situation of this Association accurately. The records and accounts are in excellent condition and they can be quickly verified. The Association is indebted to those in charge of this work for the systematic manner in which its accounts are maintained.

Respectfully submitted,

(signed) WALTER H. EBLING, *Auditor*

Report accepted as read.

Report of the Editor

The four issues of the JOURNAL OF FARM ECONOMICS, comprising Volume XXII, totalled 844 pages. The February issue, which is the Proceedings Number, included 33 major articles, 21 discussions, 10 reviews, the reports of the Annual Meetings of the Association, one memorial, and a list of publications received. This issue comprised 409 pages.

The remaining three issues of the JOURNAL (May, August, and November) contained 28 major articles, 13 notes, 55 reviews, with

11 pages devoted to publications received, 21 pages to news notes, 4 pages giving preliminary program for the annual meeting, and 10 pages to an index for Volume XXII. During the year, 15 pages of exchange material with other journals in Economics were printed.

During the period December 1, 1939, to December 1, 1940, the editor received 69 papers. Forty-one papers were accepted for publication, 17 were withdrawn or found not suitable to the pages of the JOURNAL, 22 returned for revision, 20 were resubmitted to the editor after being returned for revision, and on 15 papers no action has been taken.

The editor again expresses his appreciation to Mrs. Florence W. Nichols for handling so painstakingly the numerous routine tasks that are of necessity involved in handling the affairs of the JOURNAL. This year, more than ever before, the editors had assistance from many individuals in colleges and universities and in the federal service who have performed as "readers" of manuscripts. Their advice and recommendations have been a strong feature in handling the editorial work. Also the increasing disposition on the part of members of the profession to take time for the preparation of book reviews should be acknowledged.

The editor wishes to thank each member who has prepared materials for the JOURNAL, for his cooperation and tolerance in working with the editorial office; also, the editor wishes to thank the members of the Editorial Council for their concern and advisory judgment.

Respectfully submitted,
(signed) T. W. SCHULTZ, *Editor*

Report accepted as read.

*Report of Committee on Recruiting and Training
Personnel in Agricultural Economics*

One year ago this committee reported that attempts were being made to get under way a thoroughgoing survey of the existing situation pertaining to the recruiting and training of personnel in agricultural economics. The committee is happy to report that the survey has been made and reports of the results have been sent, in mimeographed form, to those supplying the needed information. It is believed that a copy of the mimeographed report has been available to every person directly responsible for administrative work in agricultural economics in the United States. The survey was made under the auspices of the American Council on Education. Professor T. W. Schultz of Iowa State College, a member of this commit-

tee, made the survey and prepared the reports. The reports are being published by the American Council on Education and the printed copies should be available within a short time.

This survey reveals many problems in recruiting and training personnel in agricultural economics. As a result of the survey, definite recommendations have been made which, if acted upon, will aid in overcoming existing difficulties. Your committee recommends that the committee be continued during the coming year with such changes in personnel as seem desirable to the incoming officers. It is hoped that this committee may succeed in getting into effect programs designed to overcome the deficiencies which have been brought clearly into relief by the survey. In doing this it will be necessary to cooperate with other agencies that are interested in this field. The Social Science Research Council and the American Council on Education have taken an active part in the work done to date, and further cooperation with them is desirable. Continuance of the committee will make possible this cooperation and other work designed to improve the existing situation.

(signed) T. W. SCHULTZ
C. O. BRANNEN
E. C. YOUNG
F. F. LININGER
W. E. GRIMES, *Chairman*

Report accepted as read.

Report of Professional Farm Management Committee

The committee on professional farm management considered the desirability of preparing a round table program on renting problems for the New Orleans meeting of the Association on account of the interest in that subject expressed by various members of the American Association of Farm Managers and Rural Appraisers with whom the matter was considered. Because of the number of other sessions planned for the meeting and the uncertainty as to the attendance of professional farm managers on account of the location of the meeting, it was decided not to attempt the round table.

The members of the committee recommend that regular annual appointment of such a committee be discontinued with the understanding that the President of the Association can appoint a special professional farm management committee when circumstances arise that call for the functioning of such a committee.

Respectfully submitted,
(signed) LYNN ROBERTSON, *Chairman*

Report accepted as read.

Report of the Committee on Index Numbers

Your Committee is unable to reach a unanimous agreement as to the base period to be recommended for agricultural index numbers. Three members of the Committee feel that wherever possible the five-year period 1935-1939 should be adopted as the base period for agricultural index numbers. We would make this recommendation for the following reasons:

1. There are distinct advantages arising from the use of the same base period by the different agencies preparing indexes, especially from the viewpoint of presentation of material to the general public.
2. While many agricultural agencies have chosen a post world war base, no set of years in the post-war period has a sufficient number of users to entitle it to preference over any other set of years.
3. The period 1935-1939 has been recommended by the Division of Statistical Standards, Bureau of the Budget, formerly the Central Statistical Board, as the base for all general purpose indexes prepared by Federal agencies. This recommendation will undoubtedly lead to wide use of this period as a base for series with which agricultural workers may desire to make comparisons.
4. The recommended base is sufficiently recent so that it contains the maximum number of newly developed statistical series. The two most recent agricultural censuses begin and end the period. Moreover, the general level of farm prices is not greatly different from the 1910-1914 level.

The other member of the Committee believes that agricultural costs were higher relative to agricultural prices in the period 1935-1939 than in the pre-war period 1910-1914 and that any post-war base will show agriculture relatively better off than a comparison using the pre-war period. He accordingly cannot agree that the 1935-1939 base is satisfactory.

Respectfully submitted,
(signed) WARREN C. WAITE, *Chairman*

The motion made by the Chairman that the report of the Committee on Index Numbers be accepted, and the Committee be discontinued was adopted.

Report of the Marketing Research Committee

The Marketing Research Committee has been inactive during the past year.

At the annual meeting in 1939 the committee was asked to consider the possibility of bringing together the material which had been prepared for the marketing round table, having it edited, rewritten and published. The committee has considered this matter. It has not been possible to make suitable arrangements to publish the material this year, and the committee believes that the several reports which have been made to the round tables have already served their major purpose.

If the Marketing Research Committee is continued, it should probably undertake some new lines of work, and would like to have further instructions from the officers of the association.

Respectfully submitted,
(signed) F. V. WAUGH, *Chairman*

Report accepted as read.

*Report of the Committee on Definitions of Terms
in Farm Management*

In its task of assembling a list of farm management terms and a definition for each, the committee has had the collaboration of a large number of farm management workers. One of the first activities of the committee was to obtain the assistance of a group of farm management workers in the United States Department of Agriculture in compiling a reference list of farm management terms and published definitions from farm management literature.

Three successive preliminary reports or questionnaires were prepared and distributed among farm management workers in Federal, State, and private agencies in the last three years with the request that each worker either indicate a preference among the alternative definitions submitted or prepare an additional alternative for each term. Many helpful suggestions were received. Local committees or individuals at 29 institutions responded to the questionnaire distributed by the committee in 1938.

The committee was confronted from the beginning with the problem of resolving numerous and fundamental differences in opinions, regarding terminology and definitions into a group of useful concepts. In some instances, differences in definitions reflect the influence of regional conditions. Occasionally the long continued use of certain terminology and definitions has tended to perpetuate seemingly unrealistic concepts.

But more perplexing in any attempt toward uniformity are the differences in purposes for which farm management data are assembled and studied. For example, farm management income data are used to determine: (1) The profitableness of farming on a farm and in an area, (2) the amount of annual spendable income

above current farm expenses, (3) the security for credit, (4) the advantages of alternative systems of farming, (5) the effect on farm income of the introduction of changes in the system of farming, and (6) the nature and extent of adjustments on farms in an area over a period of time.

In the development of farm accounting procedures, a number of items frequently are handled differently. Some of these different accounting procedures have been dictated by expediency in the collection of data, but most of them reflect one or more of the situations stated above. Among the items that frequently are handled differently are:

1. Inclusion of the farm dwelling as farm capital, as a contribution of the farm to family living, and as a source of farm expense.
2. Inclusion of "cash to run the farm" as a part of farm capital.
3. Inclusion in gross farm income of contributions from the farm to family living of the operator and of hired laborers.
4. Inclusion in gross farm income of value of products of the farm and of farm labor used for improvements and repairs for the farm.
5. Classification of crops held for sale as receipts or as a part of the farm inventory.
6. Separation of cash and non-cash income.
7. Summarizing income and expenses into a net value by enterprises or by groups of enterprises.
8. Grouping income from livestock and livestock products.
9. Designation of the sum of income items when they include the contribution of the farm to family living and when they exclude it.
10. Inclusion in farm expenses of board and perquisites furnished hired laborers.
11. Inclusion in farm expenses of value of unpaid family labor.
12. Inclusion in farm expenses of value of products of the farm used for improvement and repairs for the farm.
13. Designation of the residual income after deducting farm expenses.
14. Designation of income distributed to labor, to management, and to capital.
15. Valuation of all items for which values are imputed, particularly value of inventories, family labor, operator's labor, and board furnished to hired laborers.

The committee finds it impossible, with the limited amount of time its members can devote to the task, to explore or to discuss

here all of the implications of the differences in points of view that have been brought to its attention. In deciding on the terminology and definitions included in this report the committee has attempted to define only those terms it felt were most generally needed, and to define them in a way that appears to be most useful for the greatest number of purposes and under the generally prevailing conditions.

The committee notes some tendencies to change practices in accounting and in the use of terms. Among the important tendencies noticed is inclusion of family living from the farm among gross values produced on the farm and designation of the gross and net totals as income rather than as earnings or receipts, etc. The term "income" is thus used as applying to the farm or farm family as a unit, whereas the term "earnings" is used to designate income attributable to labor of the operator and unpaid members of his family, the managerial function of the operator, and farm capital. This tendency has been recognized by the committee in the preparation of this report.

Among other important tendencies to change practices on which the committee did not attempt to obtain general agreement were (1) consideration of unpaid family labor as a claimant on net income rather than as an item of farm expense and (2) the development of the concept of "farm family income" to include income to the family on the farm from all sources. The latter is particularly important in dealing with low-income and part-time farming.

The valuation of farm inventory also remains an open issue. The terms "decrease" and "increase" in inventory, as used in this report, cover some significantly different practices. One suggestion is to appraise the change in inventory between the beginning and end of the year, first in terms of quantity and quality of livestock, crops, and other items of inventory, and then to apply current market values to these changes, for the purpose of evaluating the increase or decrease in productive resources and farm products on the farm between the opening and closing inventory dates. It is recognized that this change in inventory is not realized income or expense; but if the farm capital including the products on hand had to be sold, this value would indicate the effect upon farm capital, in terms of current prices, of the changes between the beginning and end of the year on account of sales, purchases, or production for the year.

Further study and discussion should prepare the way for more general agreement in the method of handling these and other items. The committee can only hope that its report will stimulate a continuation of an exchange of ideas on terminology and definitions,

and that it will encourage workers to be discriminating in terminology and definition of terms. Its recommendations are not presented as final and of universal validity for all purposes.

We commend the practice of many workers who include in reports of farm management studies a list of definitions of terms used therein, particularly terms which are a summary measure of some phase of the farm business. We also commend the practice of systematic classification and itemization of data in tabulations supplementary to summary tables. The classification and itemization should be such as will reveal the method of handling the numbered list of items outlined above. This practice of systematic classification and itemization facilitates recombinations of the data for other purposes. Quantity data usually should accompany value data. Explanations of valuation procedures in imputing values to non-cash items are always helpful.

Farm Management Terms and Definitions

1. *Farm management* is the science of the organization and operation of farms. It considers the effectiveness of different sizes of operating units and of combinations of productive resources, enterprises, and practices for operating units; programs of adjustment for agricultural areas; and the impact of public policies and programs on economic activities on farms.
2. *Farm organization* is the selection and arrangement of land, labor, equipment, crops to be grown, and livestock to be kept in the farm operating unit.
3. *Farm practice* is a technique or method used in farming operations.
4. *Size of business* is the magnitude of the farm operations on a farm in a given year measured in terms such as an important item of farm property, farm receipts, or man work units.
5. *A farm* is one or more tracts of land, including improvements, operated as a unit for agricultural production.
6. *Crop land* is that part of the farm area normally used for the production of crops, or for summer fallow or rotation pasture.
7. *Tillable land* is that part of the farm area which can be used for cultivated crops without additional clearing, draining, or irrigating.
8. *Acres in crops* is the area of land on which crops, exclusive of permanent pasture and woods, are either growing or harvested in a year.
9. *Acres of crops* is the total acreage of crops growing or harvested in a year, exclusive of annual crops planted for harvest during the following year. It may be larger than the acres in crops be-

cause of the production of more than one crop on a part or all of the cropland.

10. A *farm enterprise* is a branch of the farm business, such as a crop or a class of livestock.
11. *Competitive enterprises* are branches of the farm business which require the use of one or more of the farmer's productive resources at the same time and thus tend to limit each other in the farming system.
12. *Supplementary enterprises* are branches of the farm business which fit together without serious conflict in the use of the farmer's productive resources.
13. *Complementary enterprises* are branches of the farm business which are contributive, each to the other, in the use of the farmer's productive resources.
14. *Type of farming* is a form of organization and methods of operation which are fairly uniform on a group of farms.
15. A *type-of-farming area* is an area in which the physical and economic conditions related to agriculture are much the same throughout and in which one type of farming or pattern of types of farming is dominant.
16. A *system of farming* is the detailed organization, methods of operation, and practices used on a particular farm.
17. *Commercial farming* is farming with the primary purpose of producing farm products for sale.
18. *Part-time farming* is a combination of farming with other occupations in which the operator devotes a considerable part of his time to non-farm occupations.
19. *Self-sufficing farming* is farming in which the principal occupation and the primary purpose are the production of farm products for use by the farm family.
20. *Diversified farming* is farming in which there are several sources of farm income.
21. *Specialized farming* is farming in which a major part of the income is normally derived from one enterprise.
22. *Intensive farming* is farming in which comparatively large amounts of labor and working capital are used per acre of land.
23. *Extensive farming* is farming in which comparatively small amounts of labor and working capital are used per acre of land.
24. A *family farm* is one which is operated largely or entirely with the labor of the operator and his family.
25. A *farm budget* is a plan for the organization and operation of a farm for a specified period of time, including a detailed state-

- ment of the anticipated gross income, expenses and net income.
26. *A farm inventory* is a list of the amounts and value of all items of farm property as of a given date.
 27. *Farm capital* is the land with such permanent improvements as are ordinarily transferred with the title to the land, livestock, equipment, feed, other supplies, and cash constituting together a farm operating unit.
 28. *Fixed farm capital* is the land with such permanent improvements as are ordinarily transferred with the title to the land.
 29. *Working farm capital* is the livestock, equipment, feed, other supplies, and cash used in the operation of the farm business.
 30. *Gross farm income* is the sum of the annual receipts from sales, miscellaneous farm receipts, increase in farm inventory, and the value of living from the farm furnished to the operator, his family, and hired laborers.
 31. *Farm expenses* is the sum of the annual cash operating expenses, value of unpaid family labor, decrease in farm inventory, depreciation, and the value of living from the farm furnished to hired laborers.
 32. *Net farm income* is the compensation, including the value of family living from the farm, for farm capital and for labor and management of the operator. It is derived by deducting farm expenses from gross farm income.
 33. *Net family farm income* is the compensation, including the value of family living from the farm, for farm capital, labor and management of the operator, and labor of unpaid members of the operator's family. It is derived by deducting farm expenses, exclusive of value of unpaid family labor, from gross farm income.
 34. *Operator's earnings* is the compensation, including the value of family living from the farm, for operator's labor and management. It is derived by deducting an interest charge for the use of farm capital from net farm income.
 35. *Family earnings* is the compensation, including the value of family living from the farm, for operator's labor and management and for labor of unpaid members of the operator's family. It is derived by deducting an interest charge for the use of farm capital from net family farm income.
 36. *Farm capital earnings* is the compensation for farm capital. It is derived by deducting the value of operator's labor from net farm income. If expressed in percentage, it should be designated "per cent earnings of farm capital."
 37. *Value of operator's labor* is the farmer's estimate of what he

would have to pay another person in cash and in kind to do the labor performed by him.

38. *Unpaid family labor* is labor, used in conducting the farm business, which is furnished by the members of the farm family, other than the operator, for which no direct wage is paid. Its value is determined on the basis of the amount of additional labor the operator would have to hire at current wages to carry on the same size business had the family labor not been available.
39. *Interest charge* for use of farm capital is an estimated charge for the use of the farm capital, based on the current rate on well-secured loans.
40. *Family living* from the farm is the farm value of farm-grown food, fuel, and other products used by the family plus the value of the use of the farm dwelling.
41. *Board of hired labor* is the cash expense incurred for subsistence of hired laborers living with the farm family.
42. *Depreciation* is the decrease in value of farm capital resulting from age, use, and obsolescence.
43. *Man equivalents* is the total months of labor, including the operator, divided by 12.
44. *Man work unit* is the average amount of work accomplished by one man in 10 hours at the usual farm tasks under ordinary conditions.
45. *Unit requirements* for farm operations are the quantities of, or the expenditures for, the factors of production used under given conditions for a unit of farm production, for a period of farm maintenance, or for the operation of a unit of farm power.
46. *Standard requirements* for farm operations are reasonably attainable standards of achievement in the quantities of, or the expenditures for, the factors of production used, under given conditions for a unit of farm production, for a period of farm maintenance or for the operation of a unit of farm power.
47. *An animal unit* is one mature horse or cow, or the equivalent in other livestock, based upon the amount of feed consumed, manure produced, or other appropriate conversion factors.
48. *Feed unit* is one pound of corn, or its feed-value equivalent in other feeds.
49. *Crop yield index* is a percentage ratio of the yield per acre of one or more crops on a given farm to the yield per acre of the same crop or crops on a group of farms. If more than one crop is included in the index, the yield of each crop is weighted by acres, man work units, or some other measure.
50. *Livestock index* is a comparative measure of production or re-

turns per animal, or unit of feed fed, of one or more classes of livestock on a given farm or group of farms, expressed as a percentage of some specified base.

51. *Diversity index* is a measure of the number and relative sizes of farm enterprises in the farm business.

Respectfully submitted,

(signed) H. M. Dixon, *Chairman*
 C. W. Crickman, *Secretary*
 G. W. Forster
 P. S. Williamson
 R. H. Wilcox
 O. C. Stine
 D. Curtis Mumford
 D. Howard Doane

Moved and seconded that the Report of the Committee on Definitions of Terms in Farm Management be published in the JOURNAL OF FARM ECONOMICS, and action on its acceptance be deferred until the next annual meeting.

Motion carried.

Report of the Election Tellers

We, the undersigned election tellers advise that we have today recorded the ballots of 493 voters in the Association's election of President, Vice Presidents, and Secretary. The results are as follows:

President	M. R. Benedict
Vice President	Sherman E. Johnson
Vice President	L. J. Norton
Secretary-Treasurer	Asher Hobson
	(signed) B. M. GILE
	J. F. BOOTH

Report accepted as read.

Other Business

The Executive Committee was instructed to make such arrangements as would handle foreign exchange difficulties for Canadian members in a felicitous manner.

Resolution

The members and officers of the American Farm Economic Association have followed closely the "Exploratory Study on Recruiting and Training Personnel in the Rural Social Sciences." The Association has long felt the need for this study. It has had a special com-

mittee working on the problem of improving professional personnel. This committee has petitioned repeatedly that such a study be made. Now that the study has been completed and the report published, the American Farm Economic Association wishes to express and record its appreciation to those who have made this study possible.

The Association is deeply indebted to the American Council on Education for sponsoring and directing the exploratory study on recruiting and training of personnel in the rural social sciences and for publishing the report. The facilities of the Council have proved to be uniquely appropriate for this important task. We are especially appreciative to President George F. Zook of the Council for his active and sympathetic administrative guidance of the study and to Vice President Dr. Clarence Marsh for his organizational skill in planning and arranging for this study in such a way as to maximize the use of the facilities of the Council.

We also wish to record our appreciation to the General Education Board for making available to the American Council on Education the resources necessary to make the study. The Board gave generously in funds both to make the study and to publish the findings. Dr. A. R. Mann of the Board gave of his time to make available reports and records growing out of their program in behalf of agricultural economics in the Southern States.

In laying the ground for this significant study, the Social Science Research Council played an important part. This Council has had a long, continuing interest in helping agricultural economics better its research personnel. Through its Committee on Agriculture and through the direct efforts of Director Robert Crane, the Social Science Research Council induced the American Council on Education to sponsor the study. The American Farm Economic Association is deeply obligated to the Council for its numerous major contributions to the rural social studies fields.

Resolved by the American Farm Economic Association that a copy of this statement be sent to the American Council on Education, to the General Education Board, and to the Social Science Research Council.

Resolution accepted.

Committee on Local Arrangements

The members of the American Farm Economic Association wish to thank the Convention and Visitors Bureau of the New Orleans Association of Commerce, and the management of the Roosevelt and St. Charles Hotels for the many courtesies that they have extended and the excellent cooperation that they have given in con-

nection with the arrangements for this annual meeting held in New Orleans.

We wish especially to express our appreciation to the Local Joint Committee on Arrangements of which Professor Elsasser is Chairman; to Dr. Roy L. Thompson, local representative of the Association, and his Committee consisting of Professors R. J. Saville and J. N. Efferson; and to the Ladies' Hospitality Committee for their untiring efforts to provide for our well-being and to promote the interest of the Association.

Executive Committee Action

Meeting of December 27, 1940

The Committee expressed a preference for holding its 1941 annual meeting in Washington, D. C., provided the hotels can give assurance of ample accommodations. Chicago was selected as first choice as a place for holding the 1942 annual meetings.

The Executive Committee authorizes the expenditure of not to exceed \$250.00 per year for clerical hire by each, the office of the editor, and the office of the Secretary-Treasurer, beginning with the fiscal year 1941.

Meeting of December 29, 1940

The Secretary is authorized to make such arrangements as are necessary to facilitate payment by Canadian members during foreign exchange emergencies.

T. W. Schultz was appointed editor of the JOURNAL OF FARM ECONOMICS for the year 1941.

The Executive Committee received the report of the Committee on Census of Agriculture and referred it to the President for such action, as in his judgment, was deemed proper.

In order to furnish transfer officers of corporations with the necessary evidence that the Secretary-Treasurer is authorized to transfer securities in the name of the Association, the following resolution is adopted.

"RESOLVED, that the Secretary-Treasurer who is also Chairman of the Investment Policy Committee, be and is hereby authorized and empowered, for, and in the name and on behalf of this Association to take any and all such steps, and to do any and all such things, as may be necessary, required and appropriate for, or in connection with, the purchase, acquisition, acceptance, handling, pledging, sale, or other disposition of stocks, bonds and other securities belonging to the Association or pertaining to its business, in-

cluding the execution and delivery for and in the name and on behalf of the Association, of any and all endorsements, transfers and assignments of certificates of stock, bonds or other securities standing in the name of this Association, either for the purpose of sale or transfer, and all such other steps and action as may be necessary or proper in connection therewith."

SUMMER MILITARY TRAINING FOR GRADUATE STUDENTS

Graduate students in agricultural economics and related fields represented at the Thirty-first Annual Meeting of the American Farm Economic Association, having noted the report of the Committee on Military Affairs of the National Association of State Universities adopted November 9, 1940 (excerpt attached), and other indications of approval for initiating summer training in military science and tactics for graduate students in the institutions of this country, desire to go on record as follows:

1. We recommend that the War Department give attention to adapting a plan of military training to the end that graduate students in this country may elect to take at least the first three months of the required year of training during the summer of 1941.

2. We recommend that each graduate student while in his first three months of training be classified for service so as to be directed into lines of training in which his abilities and training may be most useful in the national interest.

3. We commend the National Association of State Universities for bringing this problem to the attention of the federal government and suggest that its officers and members, state by state, take steps to induce other institutions of higher learning to join in bringing these matters before all graduate students to the end that their interest will stimulate positive and prompt action by the War Department.

Sanctionized by the group of about 60 graduate students representing about 15 colleges, New Orleans, Louisiana, December 28, 1940.

Committee:

R. M. Grigsby, Louisiana State University
W. C. Binkley, University of Kentucky
E. R. Glover, Texas A. and M. College
C. M. Hardin, Purdue University
E. C. Hedlund, University of Illinois
E. P. Heiby, Ohio State University
D. G. Miley, Virginia Polytechnic Institute

(Excerpt from page 9 of the report of Committee on Military Affairs presented to and adopted by the National Association of State Universities in Chicago, Illinois, November 9, 1940.)

"It has also been suggested that consideration be given to the establishment of a military training program which will be available at universities during the summer months. Under present legislation, graduate students of draft age (except those who are reserve officers and advanced course students) are liable to be selected for a year of military training any time after July 1, 1941. Necessarily, this legislation will have immediate application to all students who are over 21. The effect upon the graduate schools will be considerable, but, even more importantly, the effect upon the students of having to spend a year in military training will be troublesome. Furthermore, they will not receive reserve commissions at the end of a year of military service. In other words, although they are uniformly highly qualified men, they will spend a year in training and may simply be privates or non-commissioned officers.

"If some such summer military training program could be offered in state universities, it probably would be elected by a very large number of students at the graduate level. They would be enabled to conserve a year of time, they would receive reserve commissions instead of just a year of military training, and the Army would be well served by getting into its commissioned ranks some of the best qualified men in the country."

(At the end of report—page 14—appear the names of the three members of the committee, C. S. Boucher, University of Nebraska, Fred Engelhardt, University of New Hampshire, and A. C. Willard (Chairman), University of Illinois. Doctor Boucher is chancellor of his University and Doctors Engelhardt and Willard are presidents.)

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- Argentine Republic. *Memoria Anual de la Junta Nacional del Algodon* (Annual Review of the Cotton Production Bureau). Buenos Aires. 1939. 135 pp.
- Blaisdell, Donald C. *Government and Agriculture*. New York, Farrar and Rinehart. 1940. xiii+217 pp. \$1.50.
- Blankertz, Donald F. *Marketing Cooperatives*. New York, Ronald Press Company. 1940. 488 pp. \$4.00.
- Burns, Arthur E., and Watson, Donald S. *Government Spending and Economic Expansion*. Washington. American Council on Public Affairs. 1940. 176 pp. \$2.00.
- Cusak, Sister Mary Thomasine. *The Significance of a Changing Concept of Ownership in Social and Economic Planning*. Washington, D. C. Catholic University of America Press. 1940. 146 pp.
- De Vault, James W. *Accounting for Farm Costs*. Published by author. New York. 1939. 151 pp.
- Dummeier, Edwin F., and Richard B. Hefelbower. *Economics with Applications to Agriculture*. New York. McGraw-Hill. 1940. 752 pp. \$3.75. Chapter headings remain the same as in the older book, but there has been a revision of such chapters as Money and Banking, Foreign Trade, Tariff, Agricultural Credit, Business Cycles, Land Utilization, and the New Deal Program. A treatise on monopolistic competition is woven into chapters on value theory and the ideas of J. M. Keynes on unemployment, money, and depressions are briefly incorporated in the revision.
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- Hoos, Sidney and Holbrook Working. *Price Relations of Liverpool Wheat Futures, with Special Reference to the December-March Spread* (Wheat Studies Vol. XVII, No. 3). Food Research Institute. Leland Stanford University, California. 1940. Pp. 101-143. \$1.00.
- Kirkpatrick, E. L. *Guideposts for Rural Youth*. Washington, D. C. American Council on Education. 1940. 167 pp.

- Mendershausen, Horst. *The Economics of War*. New York. Prentice-Hall. 1940. 314 pp. \$2.75.
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- Myrdal, Gunnar. *Population, A Problem for Democracy*. Cambridge, Massachusetts. Harvard University Press. 1940. xiii+237 pp. \$2.00.
- Norton, L. J. *Financing Agriculture*. Danville, Illinois. Interstate. 1940. 388 pp. \$2.75. This new revised edition contains 388 pages as compared to 321 pages in the first edition. Additional material includes problems and assignments at the end of the chapters and more detailed explanations of several subjects. Among these, discussion of the Farm Credit Administration is expanded and brought up to date.
- Sikes, Earl R. *Contemporary Economic Systems*. New York. Henry Holt. 1940. 690 pp. \$3.00.
- Social Science Research Council. *Proceedings of Conference on Research Relating to Labor in Agriculture*. Edited by William S. Hopkins, Leland Stanford University. 1940. 67 pp. Mimeo.
- Southern Conference-Seminar on Teaching and Research in Rural Sociology. *Proceedings*. Wilson Gee, Editor. Mimeographed. 1940. ix+196 pp.
- Timoshenko, V. P. *Wheat Subsidization and Exports* (Wheat Studies, Vol. XVII, No. 2). Food Research Institute. Leland Stanford University, California. 1940. Pp. 39-99. \$1.00.
- Trehey, Rev. Harold Francis. *Foundations of a Modern Guild System*. Washington, D. C. Catholic University of America. 1940. 181 pp.
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- White, R. Clyde. *Administration of Public Welfare*. New York, American Book Company. 1940. 527 pp. \$3.25.
- Wirth, Louis (editor). *Eleven Twenty-six, A Decade of Social Science Research*. Chicago, Illinois. University of Chicago Press. 1940. 498 pp. \$3.50.
- U. S. Department of Agriculture. Interbureau Committee on Tech-

nology. *Technology on the Farm*. Washington, D. C. Government Printing Office. 1940. 224 pp. 40 cents.

U. S. Department of Agriculture in cooperation with Works Progress Administration, Family Income and Expenditures. Middle Atlantic and North Central Regions and New England Region. Part 1. Family Income. Washington, D. C. U.S.D.A. Misc. Pub. No. 370. 447 pp. 1940. 50¢.

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U. S. Work Projects Administration, Menefee, Seldon C., and Cassmore, Orin C. *The Pecan Shellers of San Antonio*. Washington, D. C. 1940.

Yates, P. Lamartine. *Food Production in Western Europe*. London. Longmans, Green & Co. 1940. 572 pp. \$6.00. (Reviewed in this issue.)

REVIEWS

Food Production in Western Europe, P. Lamartine Yates. London: Longmans, Green and Co. 1940. Pp. xv + 572. \$6.00.

Although Hitler's conquering army has made some of its material inaccurate as a description of contemporary conditions, this volume deserves a prominent niche in the literature of agricultural economics. It presents a careful, almost encyclopedic, survey of agricultural conditions and policies in pre-war Europe. For the economic historian, it will be invaluable. For students and planners of American agricultural policy, it summarizes the experiences of Denmark, Holland, Belgium, France, Switzerland, and Germany, thus being a treasurehouse of ideas, together with data on how they have worked out in practice. And, no matter who wins the present conflict, this book describes the problems that must be met afterwards for they form the basis of the changes which have taken place since September, 1939. The description of German land policy gives a clue as to what a victorious Reich may seek to do with the world's farmers and farming.

Financed by Viscount Astor and B. S. Rowntree, Dr. Yates undertook his investigation in the hope of providing light for future British agricultural policy. For this reason, all comparisons are with English conditions and the American reader must supply for himself the implication of these findings for this country. Starting out with the known fact that each of the six countries had retained a far larger proportion of people in agriculture than had Great Britain, the author sought to evaluate the consequences in terms of standards of living, productive efficiency, and economic stability. Further, he attempted to analyze the agricultural policy of each nation against its peculiar setting and problems during the past decade. Throughout his study, his interest was in answering this question: "How can agriculture be so regulated, organized, and, if necessary, remoulded as best to serve the public interest in a more consciously planned future?" Although this book does not give a definitive answer to this query, its abundant material supplies valuable clues.

Each country is studied from three viewpoints: first, the technical factors resulting in the prevalent division of productive energies among the crops and livestock actually raised; then the characteristics of the farm population and organization including tenure,

capital investment, indebtedness, size of holdings, income, etc., and, finally, an analysis of agricultural policy followed. Several chapters at the beginning and end of the book are devoted to stating the general problems considered and conclusions reached.

Of the six countries, Denmark and Holland had built up relatively prosperous economies before 1930 on the basis of free import of feed grains together with large exports of livestock products. Efficient, intensive cultivation had cut costs so that a satisfactory standard of living had been attained by many on the land. Germany, France and Switzerland were characteristically food deficit countries and made self-sufficiency a major objective, for reasons both of national defence and of the social stability believed to arise from the presence of a large, peasant landowning group. Belgium had a position somewhere between these two groups, with an agriculture devoted largely to the home market and yet subsisting on such a low level of life that it needed few tariffs or other government aids.

The post-1929 depression struck almost fatal blows at Denmark and Holland by drying up many of their export markets. Here agricultural policy was largely designed to curtail production and yet not drive large numbers from the land. Belgium was relatively—although not absolutely—unaffected and was able to remain a lone oasis of *laissez faire* agriculture. Germany, France and Switzerland sought to protect their farmers against floods of cheap foodstuffs from depression-ridden countries abroad. Germany, in addition, utilized its farms as a source of man power for expanding arms production and armies. In all three of these latter countries, emphasis was placed upon encouraging production of commodities which had to be imported from abroad, especially tobacco, flax and sugar beets.

The weapons employed were many and varied: export subsidies, acreage quotas, price fixing, marketing controls, tariffs and quotas on imports, moratoria and reduced interest rates on farm mortgages, etc. Almost everywhere the attempt was to protect the small farmer with little regard for the larger producer (who had, say, more than 125 acres!). The latter was subject to discrimination in marketing allotments, prices, subsidies and other governmental largesse. Individual variations among the countries were important, yet there was a remarkable degree of similarity among all, as well as a marked resemblance to procedures employed here, with the quali-

fication that our "regimentation" seems to have been quite moderate comparatively. Germany probably carried bureaucratic control of prices and production—as well as of tenure and indebtedness—to the most extreme point.

Dr. Yates finds that in France and Germany the attempt to keep a large farm population over a long period has resulted in higher costs of production and lower standards of living for agriculture, and some degree of deprivation for the urban masses. Against this, he points out, must be considered the gains from self-sufficiency in wartime. He makes the interesting observation that despite the Nazi solicitude for the peasant as the backbone of the nation, German farmers' rewards over the past half decade have been unsatisfactory even relative to other groups in that same country. Denmark and Holland which concentrated on cutting costs of production, as well as production itself, fared much better from the standpoint of the economy as a whole, at least before Spring, 1940.

This volume is especially recommended for the agricultural economist who has been preoccupied with American agricultural policy. It raises questions about the wisdom of some of our programs, particularly the efforts toward encouraging subsistence farming under the FSA rehabilitation grants. But it also shows the high degree of government control abroad as an important factor making for the adoption of similar policies in this country. Since the perilous days that loom ahead make further government intervention in agriculture seem a certainty, the experiences of pre-1939 Europe, as recorded here, seem worthy of serious study by a large group of those giving leadership to America's farmers.

HARRY SCHWARTZ

Columbia University

Economic Analysis of the Food Stamp Plan, a special report by the Bureau of Agricultural Economics and the Surplus Marketing Administration, U.S.D.A. by N. Gold, A. C. Hoffman, and Frederick V. Waugh.

This publication represents an exceedingly valuable contribution to an understanding of the program dealing with surplus agricultural products. It makes available statistical data on the development of the Plan since its introduction in May, 1939, and discusses the underlying theoretical principles. The report culminates in a survey of the "National potentialities" of the Food Stamp Plan. In

addition, it includes a special study of the Bureau of Home Economics made at the request of the Surplus Marketing Administration, showing the effect of the Food Stamp Plan upon the dietary standards of low income families, and a summary of the reaction to the Plan of various segments of the population.

Data concerning the effect of the Food Stamp Plan include, for example, the value of blue stamps in relation to total food sales in experimental cities, the extent of participation by eligible families, government expenditures under the Plan compared with the formerly direct purchasing program of the F.S.C.C., the effects of the Plan on retail business; the distribution of the blue stamps according to the foods included on surplus list; the extent to which stamp buying replaces ordinary buying. Whoever studies the report will be impressed by the widespread statistical material compiled, its careful analysis, and the attempt to show its relation to the various issues of policy, e.g., consumer welfare, income of various agricultural groups, retailers, consumers in general.

The chapter, "Theory and Principles of the Food Stamp Plan," considers the theoretical issues. The economic analysis is not limited to the problem of the direct distribution of the subsidy itself. The indirect effects include such ambiguous things as the effect of income shifting upon prices for different food stuffs for example. The report gives attention to the importance of these indirect effects, since the main hope back of the scheme is that it will bring about a general rise in prices for surplus food.

In the analysis considerable attention is given to benefits. Low income consumers gain by increased purchasing power. The benefits to farmers are shown to depend on (a) success in preventing substitution of normal expenditure for food by stamp buying, (b) the share of the retailer and processor in the stamp food dollar. Uncertainty on both these points is expressed. The authors estimate that approximately 25% of the increased purchasing power made available by the blue stamps is used to release funds formerly going for food, so that non-food as well as food expenditures are increased. Benefit to farmers is divided among producers of those foods put on the surplus list and farmers in general. The plan was presumably designed to aid the former. Additional demand for surplus foods occurs only to the degree that purchasing power spent for surplus goods on the list actually increases the amount of money spent for these products. The effectiveness of the policy in concentrating the

subsidy upon surplus products is shown to be affected by the number of foods placed on the list. But data on this point are largely lacking, and the authors confuse the issue somewhat by talking about benefits to farmers in general.

As to the share of the retailer and processor in the consumer's stamp dollar, the authors confine their conclusions to a market situation with fixed supply. They assume consequently that the additional purchasing power for the most part goes to the farmer. From the report the reader gets the impression that the probable benefit to farmers depends mainly upon the demand elasticity of non-participants. To illustrate its influence, the authors have compiled a table according to which the increase in farmers' income may amount to 5.8 to 7.4%. This result, however, based upon the unrealistic assumption of a fixed supply, is without any relation to the final effects the Plan may have. The more the assumption of increasing prices in consequence of inelasticity of the demand of non-participants holds true, the less probable is the other assumption of unaffected supply.

The assumption of fixed supply, in the reviewer's opinion one of the main shortcomings of the report, may be justified on the basis that foods are put on the surplus list only if prices are "below cost" and thus no inducement exists to expand production. However, it should be made clear that the concept of costs is very arbitrary. The subsidy, therefore, will at least impede contraction of production. The assumption of fixed supply is valid when attention is concentrated on possible repercussions on the present market. But with the very arbitrary decision about cost and with farmers anticipating that subsidy will be provided if the produce markets force prices below a given level, the long-run effect on the use of productive resources is at least an open question.

Several suggestions for modifications of the present program are made: It is proposed, for example, that the blue stamps be redeemed at ten per cent discount. It seems doubtful to the reviewer whether an arbitrary reduction of the retailers' share is justified in view of the fact that the retailer has to cover additional costs in handling the stamps. Besides, such a measure would probably meet objections from retailers and bring about a less favorable attitude toward the plan. In order to cut down the possibility of substituting ordinary buying by stamp buying, it is also proposed to reduce the minimum orange stamp requirement of \$1 per person per week to 50¢

and to lower the ratio of blue to orange stamps as the normal food expenditures rise. This differentiation would benefit the lowest income families, but it is doubtful whether the total amount of additional demand would actually be enlarged, because the benefits in stamp buying would decrease with increase in income.

There is no possibility of getting a complete picture of the effect on income distribution by the Food Stamp Plan as a permanent institution. Too many uncertainties are involved. Some of them may be anticipated within definite margins, e.g., the substitution of blue stamps for ordinary buying and the share of retailers; but others, such as the demand elasticity for specific foods or the elasticity of supply cannot be anticipated in statistical terms. The experimental character of the Food Stamp Plan, therefore, should be maintained even if it has become full-fledged. Experiments need a theoretical basis: this the report has in large measure provided.

KAETHE MENGELBERG

Iowa State College

Monopolistic Competition and General Equilibrium Theory. Robert Triffin. Cambridge. Harvard University Press, 1940. Pp. 197. \$2.50.

The Marshallian supply curve for an industry is employed to trace the effect of a change in demand. It can serve this purpose because the demand for the product of an individual producer is completely described by the market price and the market price is the same for all producers in the industry. In monopolistic competition analysis, the individual producer is presumed to have some control over the price of his product; he decides what price to charge, and the price charged determines uniquely the quantity he can sell. It is thus meaningless to inquire how much he would produce at a specified price. The relevant question is how much he would produce in response to a specified demand curve for his product; and the analogue to the Marshallian supply curve for an individual producer is the relation between the characteristics of the demand curve for his product and the quantity he produces (or the price he charges). A similar analogue to the supply curve for an industry would relate the demand curve for the industry to the quantity produced (or price charged). But when are the prices of differentiated products equal? What units are employed to sum the quantities of differentiated products? If these questions cannot be answered, how can

we define the demand curve for a group of differentiated products and specify its relation to the demand curves for the individual products? If attention is centered on differentiation, the firm is the industry and the notion of an industry in any broader sense must be banished.

Dr. Triffin's valuable and thought provoking book is largely concerned with the implications of this conclusion, to which he is led by a critical examination of the leading contributions to the theory of monopolistic competition. This examination suggests that monopolistic competition furnishes no tools for the analysis of an industry; that there is no stopping place between the firm at one extreme and general equilibrium at the other. The conclusion is inescapable; its implications are not, however, unique. Triffin deduces that our analytical apparatus must be overhauled to eliminate the concept of "industry"; and the positive portion of his book is conceived as a first step in that direction. The reviewer deduces that monopolistic competition adds little to our box of tools other than a refinement of Marshall's monopoly analysis. The most important problems in the real world relate to "industries," though admittedly the exact content of an "industry" depends on the problem under investigation. The fact that we state a problem in terms of a particular "industry" is likely to mean that the differences among the products of the members of the industry are less important, *so far as the specific problem is concerned*, than the similarities. For these problems, we must continue to employ the Marshallian tools, until better ones are invented. In doing so, we shall be using them for the purpose for which they were designed. The theorists of monopolistic competition have quite naturally been impelled to differentiate their product; and in the process have led us to think of the "classical" economists as concerned with "pure" or "perfect" competition alone. In fact, they were concerned with the kind of competition that prevails in the real world. (See Alfred Marshall, *Principles of Economics*, 8th edition, pp. 35, 100, 329, 341, 347, 375, 546).

Triffin's positive analysis strengthens the reviewer's belief that the Marshallian tools have been thrown away too lightheartedly, and that the absence of industry tools in the kit of monopolistic competition theory severely limits its usefulness. This positive analysis yields new, more satisfactory, and more logical definitions of monopoly, oligopoly, pure competition, and other types of inter-

dependence among firms; it contains an enlightening discussion of the meaning of "free" and "closed" entry, of the relation between competition and the shape of the cost curve, and of the theory of profit. But interesting and sound as most of these comments are, they provide no satisfactory substitutes for the Marshallian supply and demand curves. Dr. Triffin's real contribution—and to the reviewer an exceedingly important one—is his demonstration that the concept of an industry has no place in monopolistic competition theory.

MILTON FRIEDMAN

University of Wisconsin

Farm Management. Robert R. Hudelson, New York, Macmillan, 1939. Pp. 396. \$1.80.

This book was written for a specific purpose—"in the hope of supplying a need for a high school text and reference book that approaches farm management strictly from the viewpoint of the individual farm operator." In delimiting his subject further the author states that "Farm Management is a combination of the technical and the economic, with emphasis on the latter." In view of Dean Hudelson's broad experience in commercial farm management, as well as in the teaching and research phases of the subject, the announcement of this book led the reader to expect a valuable contribution to the subject. He was not disappointed. To the reviewer this seems to be the most complete and comprehensive farm management text that has yet appeared.

The book, like Gaul, is divided into three parts. However, this analogy goes no farther since a different tribe occupied each of the three parts of Gaul but there seems to be only two types of subject matter, farm organization and farm operation, in the three parts of this book. Part I is entitled "Organizing the Farm Business" and contains chapters on choosing a farm, types of farming, cropping systems, field and farmstead layout, buildings, livestock systems, pasture systems, budgeting feed supplies, and power and equipment. Part II entitled "Operating the Farm Business" contains chapters on controlling production hazards, the work program, keeping in touch with market prospects, adjusting production to demand, producing supplies for the home and marketing as a part of management. Part III is called "Farm Finance and Farm Accounts" and contains chapters dealing with gaining ownership of a farm,

tenancy, insurance for the farmer, financial budgeting, farm records, and measuring farm efficiency and size of business. Obviously this is a mixture of organization and operation. Why the material was not sorted out and included under either organization or operation is not apparent. The book would be even more useful as a text had the author done so.

The reviewer wishes to commend Parts I and II especially. Two chapters in Part I are particularly worthy of mention. The one dealing with planning the pasture system is very timely, as well as new in farm management texts. The discussion of budgeting feed supplies and the large amount of data covering livestock feed inputs is a real contribution. Most of the material in Part III is also well presented but would probably be more effective if separated into organization and operation and included in Parts I and II.

The chapter on farm budgeting hardly does justice to a subject of such importance in farm management. The author seems to be guilty of sins of both omission and commission in this connection. He fails to set forth clearly the principle of substitution or the balancing of alternatives as the fundamental basis of budgeting and leaves the impression that the most effective budget can be set up directly in a single planning operation. Little or no attention is given to the numerous uses for substitution analysis in all phases of farm planning. The chapter on measuring efficiency and size of business seems inadequate in view of the intense interest in this subject now developing and the mass of new material now available.

This book was written as a high school text. The reviewer is inclined to think that it is just as well adapted for use as a college text. With the addition of a little more basic economic philosophy the book could be made even more useful for college students without being less so for secondary school students. Many of the principles stated and discussed would probably be a little easier for the high school student to grasp if illustrated with specific factual data and cases. Many farm management texts are overburdened with an excess of statistical data, often very local in its application. At least it is a refreshing change to see an author veer toward the other extreme.

Writing a generally acceptable farm management text is not an easy task. The economic background of farm management can be made generally applicable to various types of farming and to differ-

ent agricultural regions. The technique of farm management is, however, not so universal in its application. It is difficult effectively to illustrate the fundamental principles of farm management without localizing its setting and limiting its sphere of usefulness. The dynamic nature of farming makes it difficult to keep illustrations in step with advancing technique and the rapidly changing economic environment. Dean Hudelson should be strongly commended for avoiding either over-generalization on one hand or excessive explanation in terms of local technique on the other.

It is to be hoped that the proportion of space in this review devoted to the shortcomings of this book will not mislead the reader to think that the reviewer is more impressed with them than with its virtues. Such a conclusion would be far from the facts of the case. This is a valuable contribution as a text and reference work in both high school and college classes in farm management. The reviewer hopes that his criticisms of certain sections may serve to indicate where this text needs supplementing in presenting a well rounded course in farm management.

GEORGE A. POND

University of Minnesota

The Economic History of Live Stock in Ireland. John O'Donovan, Cork University Press, Dublin, 1940. Pp. 460 12/6.

This book is divided into four parts: (1) livestock in Ireland to 1845, (2) the industry since the famine, (3) state schemes for the improvement of livestock in Ireland, and (4) conclusions. It deals chiefly with the period from 1600 to 1931, although the opening chapter reviews briefly the developments which had taken place prior to 1600. As stated in the preface "The statistical analysis ends at the year 1930-31 and no attempt has been made to bring the figures up to date. The period of expansion closed at that time, and in the subsequent years the effects of the world depression and of the economic dispute with Great Britain overshadowed Irish agriculture."

In tracing the historical development of the livestock industry, the author introduces extensive quotations from the published works of many agricultural writers and from various public documents and reports. Emphasis is placed upon changes (1) in the type of the various species of livestock (2) in the age at which the animals were

marketed, (3) in the productivity of the animals raised for meat, milk and wool, and (4) in the composition and total volume of exports of live animals and animal products. Attention is called to attempts that have been made to improve marketing methods and practices, and to develop satisfactory outlets for live animals and animal products. Throughout the book, the author presents an analysis of the more important political and economic causes underlying the developments that have taken place.

The closing chapter will be of special interest to readers in North and South America. Here the author emphasizes the importance of livestock in Irish agriculture and the place occupied by Irish farmers as suppliers of the British market. "In no other country in the world is the raising of all forms of livestock so much the great national occupation as it is in Ireland." It is estimated that "more than 70 per cent of the agricultural income in Ireland in the year 1930 came from livestock and dairy production." The greater part of the land used for agricultural purposes is devoted to natural pasture. Pastures are luxuriant because of an abundance of rainfall uniformly distributed throughout the year. Moderate temperatures make it possible to graze livestock most of the year and relatively little shelter is required. Consequently, the country is well adapted to the production of beef, milk, and mutton and wool. Hogs are also grown in sufficient numbers to more than supply domestic requirements.

The conclusion is reached that Irish farmers are in a strategic position to supply British farmers with store cattle, and that every effort should be made to produce the type of cattle desired by this trade. The outlet for fat cattle appears to be less hopeful. "Although the relative prices in Great Britain of home killed and imported chilled beef have not altered in the past fifteen years, and there is still among the better off section of the urban population a preference for home-killed meat, the pre-war prejudice against frozen meat no longer exists. As a result of improved methods of refrigeration, the meat from overseas arrives in Great Britain in excellent condition, and the difference in price is much smaller than it was in pre-war years."

The author believes that the development of beefing qualities must "be carried on side by side with the improvement of dairying qualities." Contrary to the belief of many on this side of the Atlantic, he contends that these qualities can be combined satisfactorily

in a single animal—the dual-purpose Shorthorn which is to be found on the majority of Irish farms.

A. A. DOWELL

University of Minnesota

Cotton Growing in Texas, National Youth Administration of Texas. Austin, Texas, 1939. Pp. 79.

This report, as stated in the Foreword, was "written for boys and girls who are seeking general information regarding employment fields" in cotton growing and related industries in Texas. The first chapter deals with several agencies including 4-H Clubs, F.F.A. Chapters, N.Y.A., and the C.C.C. which are offering the farm youth of Texas an opportunity of preparing themselves to till the soil of the State in a more intelligent and profitable manner in the future than has been true in the past. The remaining four chapters deal with various phases of cotton production, marketing and processing. Cotton is Texas' major cash crop, and production and marketing of the crop gives employment eight or ten months out of the year to more people than any other enterprise in the State.

The details of growing cotton, including a description of the preparation of the land, planting, cultivating, harvesting, and also a description of the major diseases and insect pests of cotton and the commonly accepted means of control are dealt with in chapter three. The chapter likewise deals in detail with the labor problem, including the use of women and children, and some 300,000 migratory workers who are engaged eight months of the year.

Chapter four describes the duties of persons engaged in the various phases of cotton production. It likewise gives data relative to the average annual income of various types of farm operators or wage workers engaged in the production of cotton. The last chapter contains an analysis of three related occupations, cotton ginning, cottonseed products manufacturing, and cotton textile manufacturing.

LIPPERT S. ELLIS

Oklahoma A. and M. College

World Trade in Agricultural Products. Its Growth; Its Crisis; and the New Trade Policies, by L. B. Bacon and F. C. Schloemer. International Institute of Agriculture. Rome. 1940. Pp. vi+1102. \$3.00.

"World Trade in Agricultural Products" is the result of an ambi-

tious undertaking. In it ambition is justified by a surprising amount of material well organized in what appears to be an accurate manner. Those who have attempted to work with the voluminous data pertaining to world trade classified by commodities, and by countries, measured in terms of both volume and value appreciate the numerous difficulties encountered in attempting to harmonize the figures of our country with those of other countries. Not only are classifications different and varied, but incompleteness and uncertainty as to what may be included in a given classification is an ever present problem.

The author of this review had the privilege of participating in an international conference on economic statistics sponsored by the League of Nations. This conference was held in Geneva in 1928. As a result of its deliberations a draft treaty was formulated for the purpose of bringing about a greater degree of uniformity among nations in collecting and compiling economic statistical data. The need for more uniformity in international trade data was universally recognized. Much attention was given by the conference to this field. These proposals were made full twelve years ago. As far as I am informed, this treaty still lacks a sufficient number of signatures for putting it into operation. It looks as if the analyst of foreign trade will have to continue to worry along as best he can for some time to come.

In view of this situation the authors, L. B. Bacon and F. C. Schloemer have turned out a commendable product. The publication throughout bears the imprint of persistent searching of widely scattered source materials, which could only have been pursued to a successful conclusion with the aid of well staffed cooperating agencies, and fairly generous financial support. The project was inaugurated by Dr. H. C. Taylor in 1934, who was at that time American Representative on the Permanent Committee of the International Institute of Agriculture at Rome. He was successful in securing financial aid from the Rockefeller Foundation. Dr. Taylor maintained a supervising contact with the work until its completion.

There is evidence of substantial contributions by the staff of the International Institute of Agriculture, and of the Statistical Office of the German Reich.

The authors have gone about their task in a painstaking manner. Their classifications are accompanied by extensive explanations as

to the countries and products included or excluded. Terms used are defined with preciseness.

The 1100 pages of material are treated under two general groupings: an analysis of world trade in agricultural products by (1) commodities and commodity groups, and (2) by countries.

Such treatment greatly facilitates the use of the material by readers with specialized interests. The student interested in world trade with reference to wheat, for instance, will find this subject treated in a single chapter. Those interested in foreign trade policies with respect to agricultural products in specific countries will find these covered in conveniently centralized treatments. In the analysis both by commodity and by country, emphasis is placed upon "the historical development and growing influence of governmental measures on agricultural trade."

The data cover a considerable period with emphasis upon the pre-war period (prior to 1914), the post-war period (the Twenties), and extends well through the Thirties, in some instances as late as 1938. Measurements in both volumes and values are freely used.

While the commodity treatment is not as complete as that found in certain special studies or groups of studies, such for instance as the wheat studies issued by the Food Research Institute at Stanford, they are surprisingly complete for a study which attempts to cover so many countries and so many commodities. The reader is bound to be impressed by the amount of material assembled on such a wide variety of commodities over such extended periods.

The war, of course, has greatly altered the flow of world trade. It has damned up old channels and built new ones in a short period of time. What the outcome will be with respect to world trade conditions, one can only guess. The work under review will serve as a basis for measuring these changes whatever they may be.

The discussions of agricultural policy matters in the major agricultural exporting and importing countries will be most welcome to American students of international agricultural relations. The manner and extent of their treatment is indicated by the chapter dealing with the United States of America. Our tariff history is reviewed. Agricultural production trends are analyzed. The evolution of exports and imports of agricultural commodities is traced. The relationship of trade policies to the depression receives attention. The Federal Farm Board, the Agricultural Adjustment Act in its various stages, and the trade agreements program are woven into the

picture. The provisions of the measures creating these programs are described in an understanding manner. It is too much to expect a penetrating analysis of their results. One suspects also that the authors may have been handicapped somewhat in expressing their own views by the procedure of submitting these portions of their manuscript to the governments directly interested, for correction and suggestions. Nevertheless, much statistical data are presented upon which the reader may go far in drawing his own conclusions.

The reviewer is highly gratified that such a work has appeared in the English language. His enthusiasm comes in part, at least, from an attempt to teach a course in International Agricultural Relations on the basis of widely scattered materials, often unavailable to the student, and at best filled with gaps that could not readily be closed. This publication greatly improves that situation.

The favorable impressions of the reviewer is based not so much upon the concept of a completed task, or a finished piece of work, but upon the commendable way such a difficult job has been handled.

Perhaps one of its greatest values, one not readily recognized by most readers, is the manner in which this study will extend and intensify the foreign trade coverage of the International Institute of Agriculture. It is not too much to say that "World Trade in Agricultural Products" has set a new high mark in scholarly attainment for Institute publications.

ASHER HOBSON

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